THE ARCHITECT & BUILDING NEWS

British

BUILDING PRODUCTS

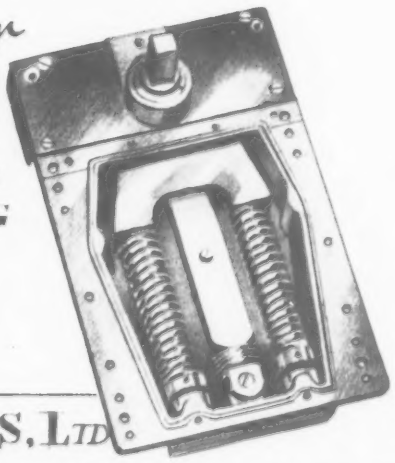
for the World

JUNE 25, 1953 · VOL. 203 · NO. 26 · ONE SHILLING WEEKLY

City Grandeur

THE MONARCH FLOOR SPRING

MAKERS OF FLOOR SPRINGS IN TEN REIGNS



WILLIAM NEWMAN & SONS, LTD.

HOSPITAL STREET BIRMINGHAM. Established over 200 years.

Bolton Ray Operated Doors are always one move ahead of you, making way quickly and quietly for the passage of personnel and materials with a smooth efficiency which saves time, trouble and tempers. In the above illustration Bolton photo-cell equipment is operating an "Armourplate" glass door in the Testing Department at the School Lane Mills of Messrs. A. S. Orr & Co. Ltd., Bamber Bridge, Nr. Preston. (Architects: Messrs Lillie & Kirkham.) Our range includes every type of internal and external door—hand, power or ray operated. Our fully illustrated Catalogue AB53 tells the whole story.

LONDON OFFICE: 248 PERTH ROAD, ILFORD, ESSEX

Ref. No. BG 83

RAY OPERATED

BOLTON C-O-L-L-A-P-S-I-B-L-E
DOORS & GATES

BOLTON GATE COMPANY LIMITED, BOLTON, LANCS., ENGLAND

... another "Tees Side" Job

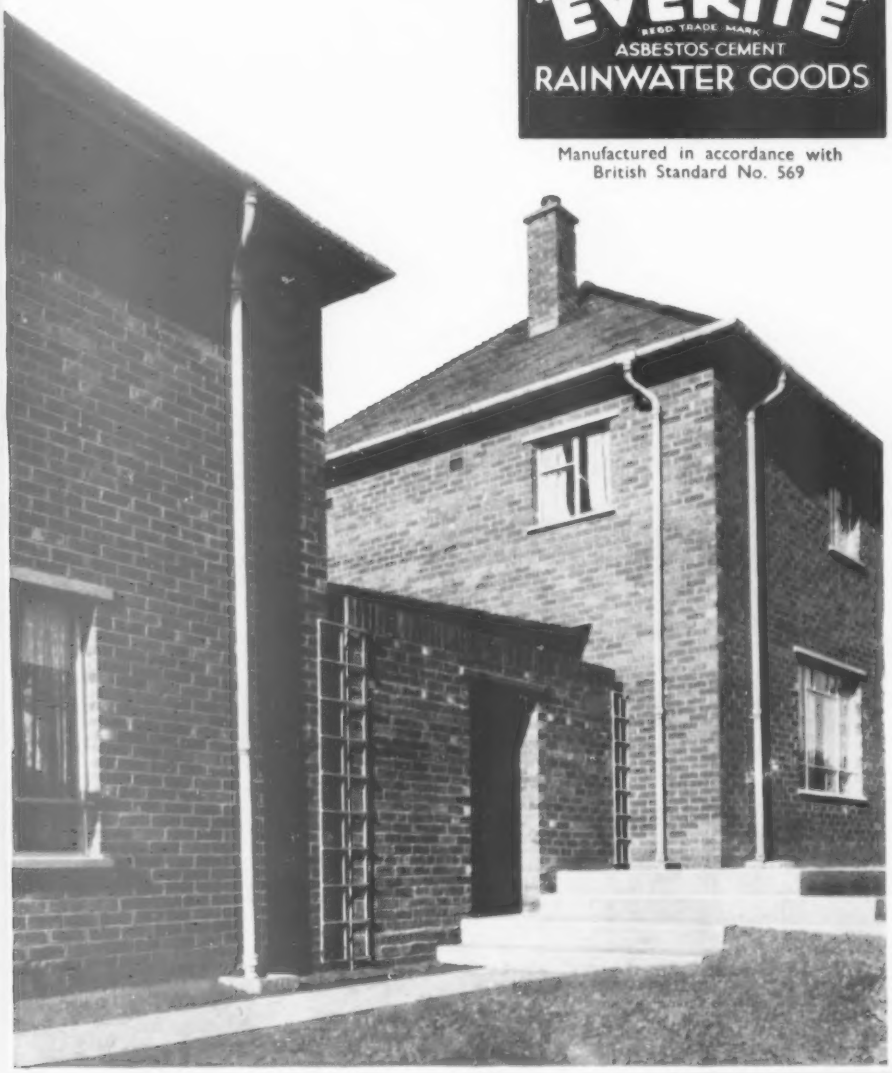
Typical boiler-supporting steelwork supplied and erected by us at a British Electricity Autherity Power Station in the Midlands.

THE TEES SIDE BRIDGE AND ENGINEERING WORKS LTD
MIDDLESBROUGH AND LONDON

No painting – minimum maintenance

"EVERITE"
REGD. TRADE MARK
ASBESTOS-CEMENT
RAINWATER GOODS

Manufactured in accordance with British Standard No. 569



- LOW INITIAL COST
- MINIMUM MAINTENANCE COST
- NO NEED TO PAINT
- READILY CUT WITH A SAW
- FULL HALF-ROUND GUTTER SECTION
- 10ft. PIPE LENGTHS SAVE JOINTS

"EVERITE" Asbestos-Cement RAINWATER GUTTERS and PIPES are extensively used on housing schemes throughout the country and provide both INITIAL and LONG TERM ECONOMY.

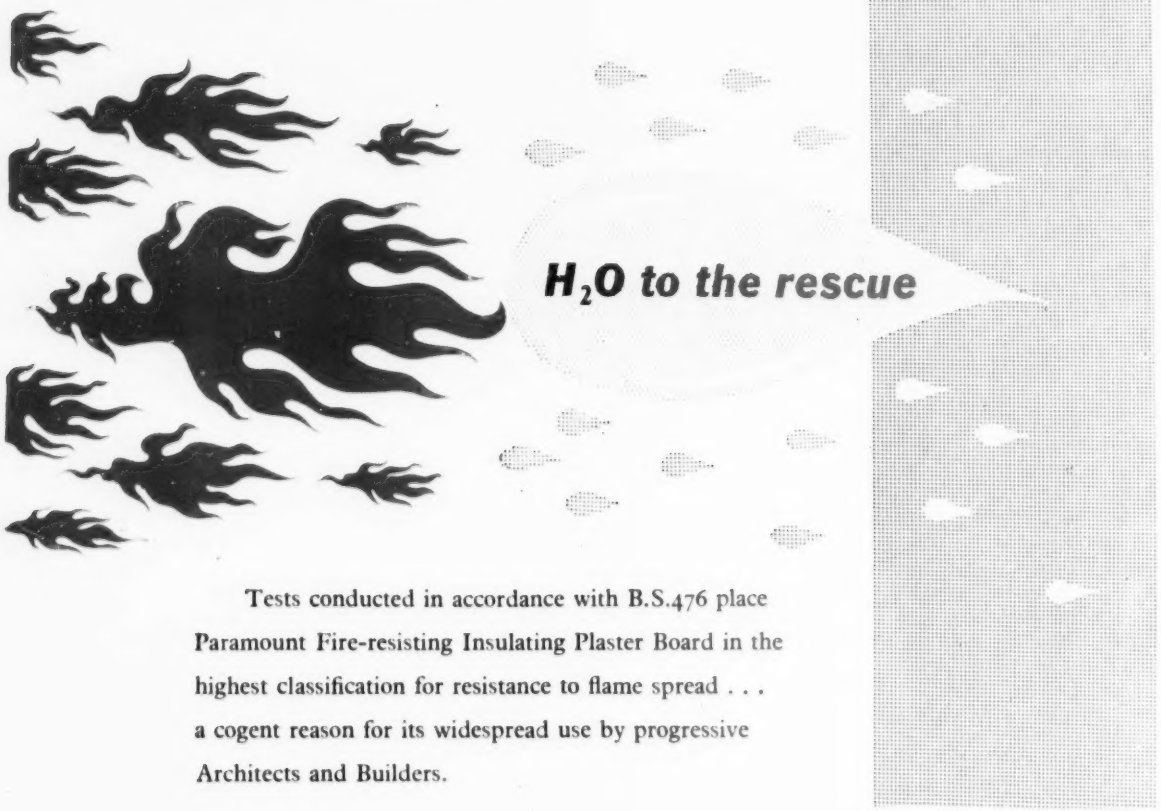
The illustration shows :—
Houses on BLURTON ESTATE—STOKE-ON-TRENT.
J. R. Piggott Esq., F.R.I.B.A., City Architect.

TURNERS ASBESTOS CEMENT CO LTD
A MEMBER OF THE TURNER & NEWALL ORGANISATION
TRAFFORD PARK MANCHESTER 17

R 6

In buildings of all types, 'Paramount' Insulating Plaster Board affords a high degree of protection against fire

Gypsum, which forms the core of Paramount Plaster Board, contains 20% of chemically combined water and, consequently, ***cannot burn.*** When attacked by fire, the process of calcination is so slow that flame spread is greatly retarded and the extent of loss appreciably curtailed



Tests conducted in accordance with B.S.476 place Paramount Fire-resisting Insulating Plaster Board in the highest classification for resistance to flame spread . . . a cogent reason for its widespread use by progressive Architects and Builders.

Factory roofs and walls, lined with 'Paramount' Insulating Plaster Wallboard, fixed by the 'Paraclip' System, have greatly increased thermal insulation and fire-resistance. The capital outlay is quickly recovered by the fuel economy achieved.

THE BRITISH PLASTER BOARD LIMITED

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1-5 JERMYN STREET, LONDON, S.W.1.
Telephone: Whitehall 9821

NORTHERN SALES OFFICE
BIRKENHEAD ROAD,
WALLASEY, CHESHIRE
Telephone: Birkenhead 4411

244/91

KINNEAR PATENT STEEL ROLLING SHUTTERS

Registered KINNEAR Trade Mark

Architects: Messrs. Creeke, Gifford & Oakley, Bournemouth

HAWTHORNS HOTEL, BOURNEMOUTH: GARAGE.

The 19 Kinnear Shutters in this Garage were erected by us in 1912, and they are to-day working as well as ever after 41 years' service. During this time no repairs have been carried out by us, nor, as far as we are aware, by any other firm.

The types of cars illustrated in the two photographs will show, we think, that the upper one was taken when the Shutters were handed over in 1912, and the lower one this year.

Head Office:
Radnor Works - Twickenham.
Telegrams: "Shannles Twickenham"
Telephone: Popesgrove 2276

Sole Manufacturers:

ARTHUR L. GIBSON & Co LTD

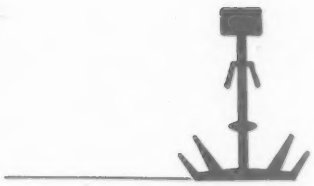
Branch Offices:- Birmingham: 136, Yarningale Road Highbury 2804 Manchester: 79, Piccadilly Central 1008 Glasgow: Lister Road, Hillington Halfway 2928

B

GLAZING

DONCASTER POWER STATION

There is hardly a corner of the new Doncaster Power Station that is not flooded with natural light. It comes, in the main, through the 36,000 sq. ft. of Georgian glass that is set in Williams & Williams Aluminex Patent Glazing.



Five men fixed all Aluminex

The steel framed power station is almost completely clad in glass and aluminium sheeting clipped into Aluminex aluminium alloy bars. Aluminex is also extensively used in the ancillary buildings—yet it was all fixed and glazed to schedule by the Williams & Williams site team of only five men. Working in cradles hung from permanent cradle rails (permanent, to facilitate future servicing) they put up complete walls of glass in astonishingly short times. All the East gable Aluminex, for instance, was fixed to the structural frames and then glazed in 10 working days.

Mansard Sheeting and Opening Lights

The Aluminex system is very versatile. On the right can be seen several tiers that have been clad with Mansard ribbed aluminium sheeting. This solid in-filling is used where unsightly internal structures are immediately next to the glazing. A 175 ft. stretch of hoppers in the conveyor house and heavy internal crane rails are concealed in this way.

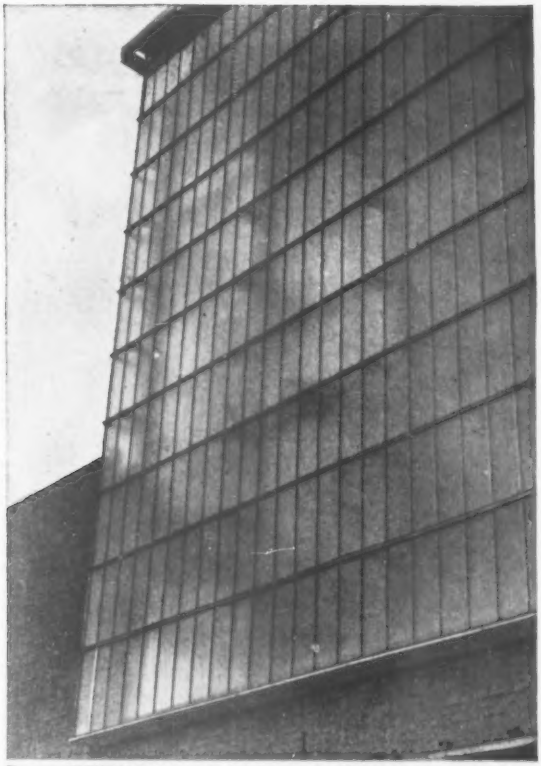
Ventilation at Doncaster is achieved by further tiers of Aluminex continuous sidewall opening lights. These are operated electrically by remote control.

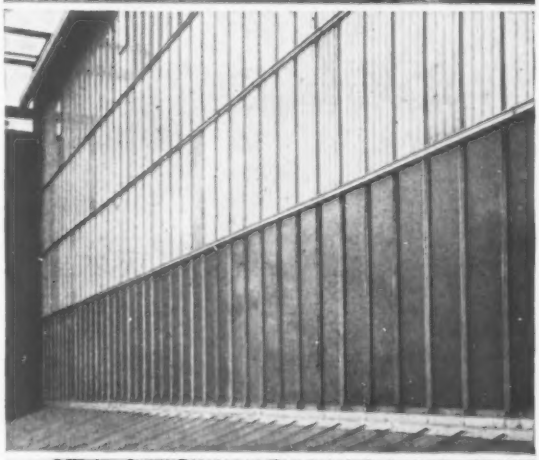
Puttyless, paintless Aluminex

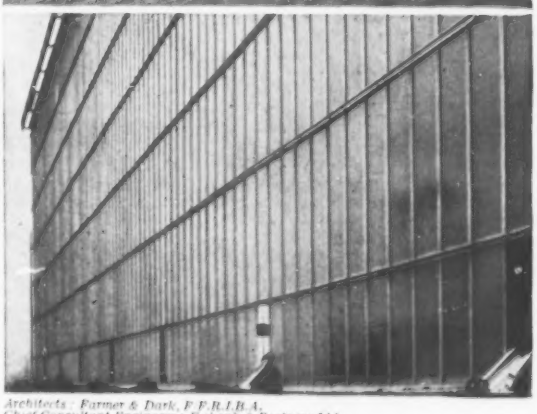
Aluminex maintenance costs are negligible. Painting is unnecessary, even though the air round the power station is so corrosive, since the glazing bars were extruded from special corrosion resistant aluminium alloy. This alloy rapidly oxidises to form a patina that is its own permanent protective covering. Accidental glass breakages, almost the only maintenance item, can be replaced in a few minutes.

Metal windows and doors

Williams & Williams contribution to the growing power of Britain is not confined to Aluminex or to Doncaster. Their metal windows, both standard and purpose-made, and their metal doors, will be found in power houses, gas works, and hydro-electric schemes at Braehead, Stourport, Rye House, Keadby, Beckton and Loch Sloy.







Architects: Farmer & Dark, F.F.R.I.B.A.
Chief Consultant Engineers: Ewbank & Partners Ltd.
Civil Engineering Consultant: Sir William Halcrow & Partners, MM.I.C.E.

Williams & Williams Ltd., *Makers of metal windows, doors and Aluminex Patent Glazing*, **Reliance Works, Chester**

Westfield Court,
Gorgie, Edinburgh.
Consulting Engineers :
Messrs. Kinnear & Gordon.

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FRANKIPILE

(THE FRANKI COMPRESSED PILE CO., LTD.)

39 Victoria Street,
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Telephone : ABBey 6006-9 *'Grams : Frankipile Sowest, London.*

And in AUSTRALASIA, BRITISH WEST INDIES AND SOUTH AFRICA.

THE SPECIFICATIONS

for NEW GOLD COAST COLLEGES

include EVODE INSULATING PASTES

the sturdy ROOF WATERPROOFING MATERIALS that withstand torrential rains and remain stable under the extreme temperatures and rapid temperature changes of the most severe tropical climates.

Specified by leading Consultants for all types of roof constructions throughout the Equatorial belt Evode Insulating Pastes, applied cold and easy to use, will not " blister " or " drape " or flow from flat, pitched or perpendicular surfaces. Immensely strong they are yet remarkably flexible and light in weight—only about ½ lb. per square foot. Finished with the famous Evode Silver Film, a bituminous based liquid aluminium which ably assists thermal insulation by reflection reducing the room emperature within by as much as 20 per cent. A special grade is available for roofs designed as catchment areas for drinking water.

Architects :
Fry, Drew & Partners, London—Accra—Ibadan.

Contractors :
Tonone & Micheletti of Kumasi.

EVODE PRODUCTS include:-

EVODE INSULATING PASTE. Roof waterproofing compound, applied cold, for use on concrete, zinc and lead flats. For revival of asphalt and felt roofs. Waterproofing gutters, forming flashings (eliminating metal), etc.

MELLITOL. Concrete waterproofing admixture, for concrete, cement renderings and pre-cast stone. Only 1 per cent. per weight of cement is required.

EVODE PROVER. Permanent and effective hardening treatment for cement surfaces, concrete and granolithic floors. Eliminates dusting and resists the erosive action of oils and acids.

EVO-LED. Supersedes ordinary red lead primers for metal. This true red lead primer will not bleed through nor be lifted by bituminous, oil bound, chlorinated rubber or other finishing paints. Evo-Led Primer can be applied to dew-moist surfaces.

EVODE BLACK. A range of 7 true asphaltic bituminous paints for protecting metal and concrete against heat, cold, damp, smoke, fumes, gases.

EVODYNE CHLORINATED RUBBER PAINTS. Highly alkali and acid resisting. Far in advance of other chemical resistant paints.

EVOLENE system of " Dumoist " paints permits Primer, Undercoat and Alkyd Enamel paint to be applied directly to dew-moist surfaces. Gives a high-gloss decorative effect with maximum protection.

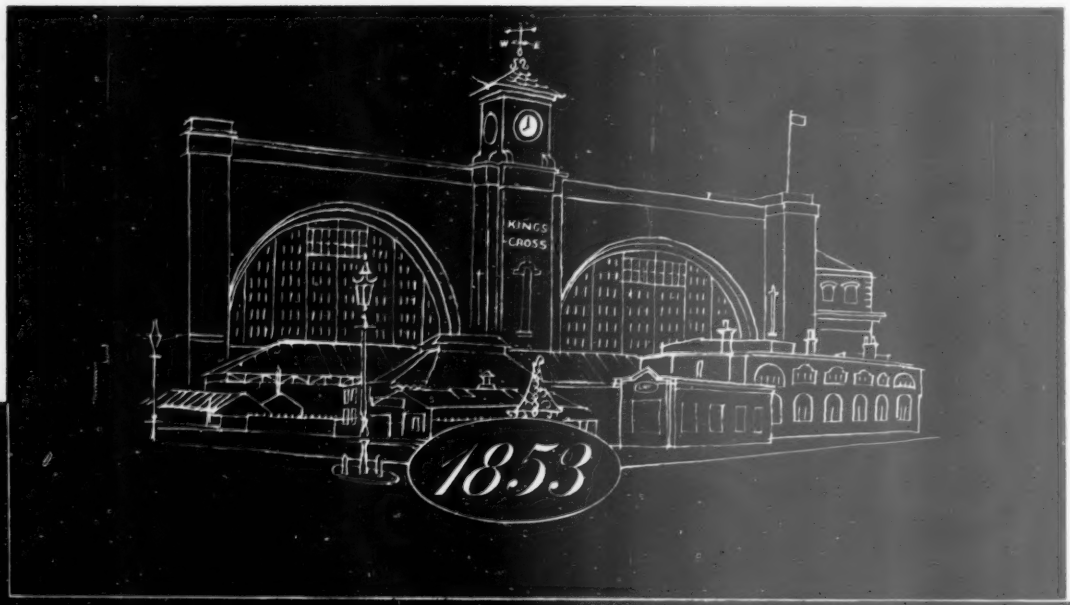
Write for separate leaflets

EVODE LTD., GLOVER STREET, STAFFORD, ENGLAND

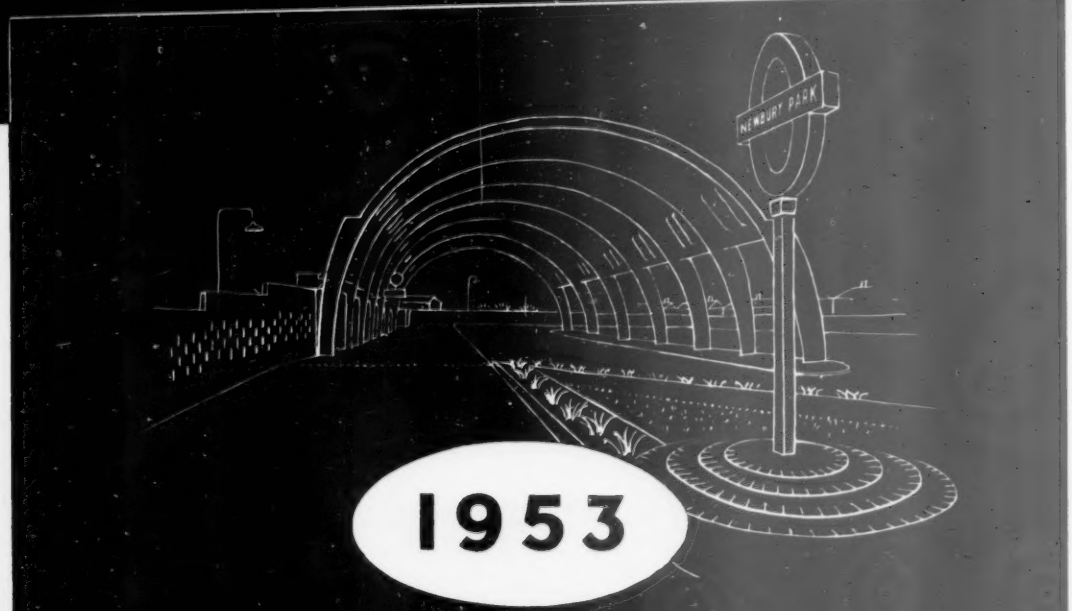
Telephone : 1590/1/2 *Telegrams : Evode, Stafford*

★ **AGENTS REQUIRED**

SEE PAGE 93



HALL HARDING LTD



King's Cross Station had just been opened when the brothers Samuel and Charles Harding made their first recorded transaction in Drawing Office Materials. The intervening century has seen sweeping changes from the florid Mid-Victorian to the clean lines and curves of today.

Drawing Office Materials and Equipment have undergone an equally impressive transformation and many of the improvements in drawing office practice have been the result of the initiative and research of the present company and predecessors.

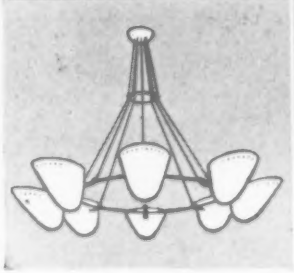
Head Office: STOURTON HOUSE · DACRE STREET · LONDON · S.W.1

The Free Trade Hall, Manchester — architect, Leonard C. Howitt, Esq., F.R.I.B.A. — has been equipped with pendant lighting fittings made by Troughton & Young and designed especially for this interior.
At the foot of this advertisement, are illustrated a few examples of standard fittings designed on the same principle. They are taken from the Troughton & Young Versalite range.

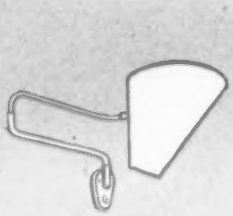
TROUGHTON & YOUNG (LIGHTING) LIMITED

The Lighting Centre

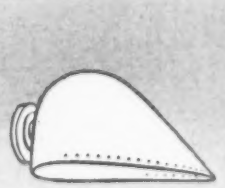
143 KNIGHTSBRIDGE, LONDON, S.W.1. TELEPHONE: KENSINGTON 3444



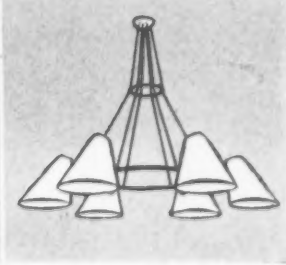
FV. 118/R PENDANT. Eight-light ring with large metal reflectors. Finishes: reflectors and supports, off white; remainder, satin brass. Flexible cords, white. Lamps: up to 8 x 100 watts.



FV. 2/S BRACKET. Adjustable arm. Finishes: backplate, off white; arm, satin brass or satin chromium. Shades: ivory or peach plastic. Complete with switch. Lamp: up to 75 watts.

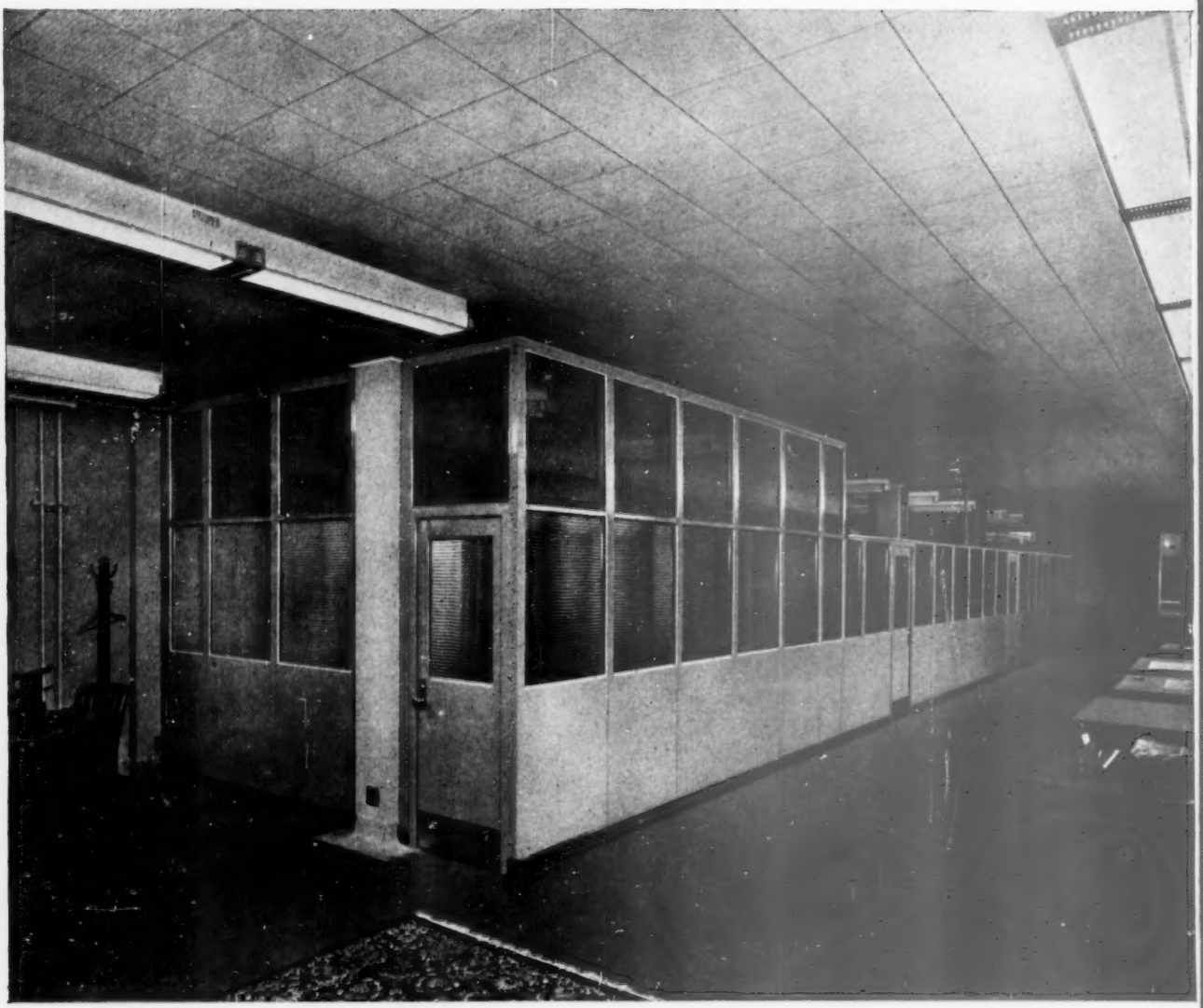


FV. 3/R BRACKET. Small metal reflector. Finishes: reflector, off white; backplate, gilt or silver anodised aluminium. Lamp: up to 60 watts.



FV. 116/S PENDANT. Six-light ring with shades. Finishes: Shade supports, off-white; remainder, satin brass. Shades: ivory or peach plastic. Flexible cords, white. Lamps: up to 6 x 75 watts.

Rowe METAL PARTITIONING FOR OFFICES,



INSTALLATION Dominion Tar & Chemical Co., Banque Canadienne, Nationale St., Catherine & Metcalfe Sts., Montreal, Quebec.

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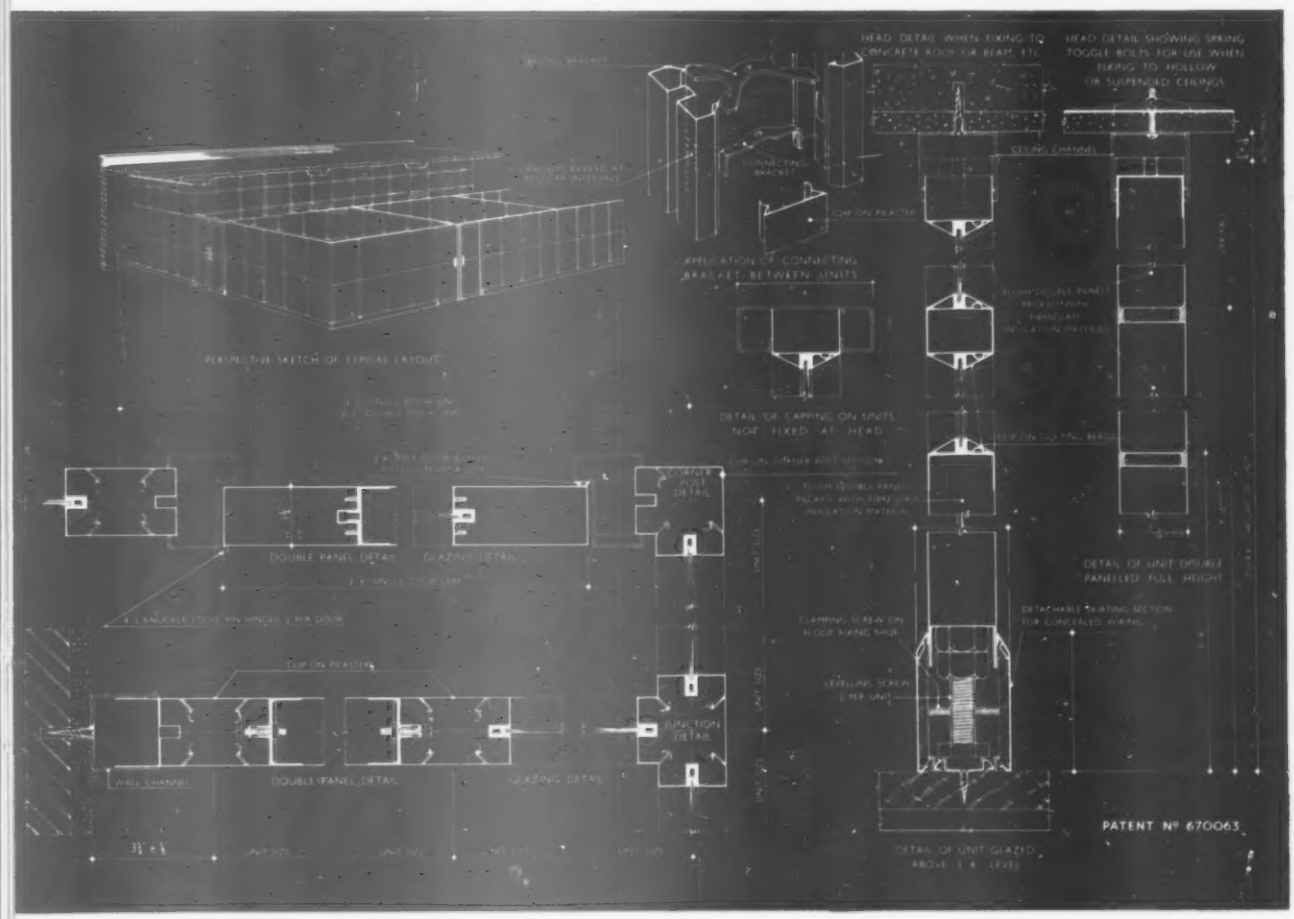
Rowe Partitions are expressly manufactured to meet the constant and rapid changes in modern business undertakings. Quick, easy erection and dismantling for re-erection to any given plan are outstanding features of their design. They offer to the Architect and Client the complete solution to the problem of efficient space allocation.

Construction is on a standard unit principle and installations are complete in themselves, requiring no other supporting structural work. They can be removed entirely (if required) almost without trace. Erection of the partitions is a matter of intelligent supervision of semi-skilled labour, and buyers overseas have made their own installations without difficulty. Full instructions and advice are provided, and if necessary we quote for superintendence in any part of the world. After some years' experience our export packing ensures undamaged out-turns.


HEAD DETAIL WHEN FIXING TO CONCRETE ROOF OR BEAM, ETC.
HEAD DETAIL SHOWING SPRING TOGGLE BOLTS FOR USE WHEN FIXING TO HOLLOW OR SUSPENDED CEILINGS
APPLICATION OF CONNECTING BRACKET BETWEEN UNITS
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DETACHABLE SKATING SECTION FOR CONCEALED WIRING
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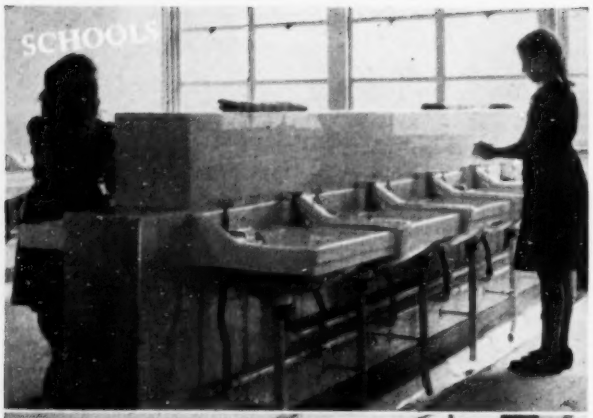

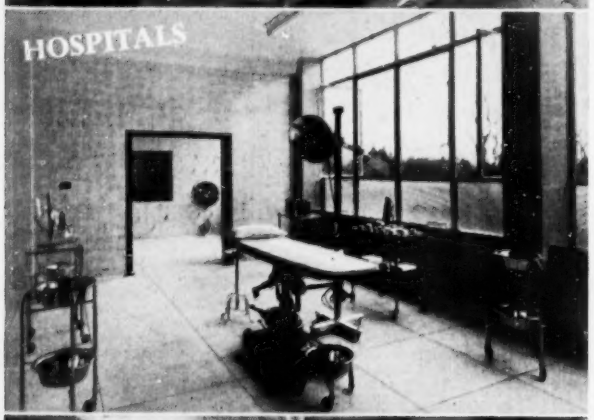

For the U.S.A., Canada, Central America and West Indies, in addition to the normal shapes and sizes, the following tiles are available: 4¼" x 4¼" x 5/16" Cushion Edge in the following selected range of Enamels used with 4240 Capping:

GLOSSY GLAZES

BD 876. Yellow
BD 901. Dark Blue
BD 1020. Mauve
BD 1488. Dark Brown
BD 4888. Light Blue

EGGSHELL GLAZES

ED 4400. Light Green
ED 4457. Medium Green
ED 4459. Light Blue
ED 4567. Dark Blue
ED 4898. Light Yellow

In England the best known name in GLAZED and FLOOR TILES is CARTER

Carter tiles are also used throughout the world for Power Stations and Refineries, in ships, factories, railway stations, transport buildings and in domestic architecture.

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VENEZUELA: C.I.R.C.A., Misericordia a Pele El Ojo 161, Apartado de Correos, 43, Caracas.

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BORNEO & MALAYA: "Hecla," 49 Scotts Road, Singapore.
ISRAEL: Hans Friedlander, P.O. Box 1905, Tel-Aviv.
AUSTRALIA: Carr & Elliott, Pty. Ltd., Box 3288, Sydney: 346 Little Collins St. Melbourne: and Box 1971X, Brisbane.
NEW ZEALAND & SAMOA: Morgan & Aickin, P.O. Box 206, Wellington, C.1. and P.O. Box 270, Auckland.

EUROPE

GREECE: A. Tsaoussis, 33, 3rd September Street, Athens.
ICELAND: Orka H. (Power Ltd.), Reykjavik.
MALTA & DEPENDENCIES: General Building Material Agency, 10 West Street, Valletta, Malta G.C.
NORWAY: T. Plesner & Son, Konensgate, Oslo.
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The Scottwood " PACIFIC " House. Type EX/110/1

BRIEF DESCRIPTIVE SPECIFICATION

The design of the attractive SCOTTWOOD " PACIFIC " HOUSE with its airy verandah, is specially suitable for export to countries with hot or humid climates. An even temperature throughout the house is maintained, due to the exceptional thermal insulation properties of the SCOTTWOOD walls.

There is a choice of internal planning. The Type EX/110 has a Kitchen/Dining Room, whereas the Type EX110/1, as exhibited in the British Industries Fair, gives a particularly large Living/Dining space for a two bedroom house, and a kitchen which still allows for a spacious refrigerator and washing machine, besides all the usual standard kitchen fitments.

Like all SCOTTWOOD designed Single Storey Houses, the site works and erection of the " PACIFIC " HOUSE are reduced to a minimum and they can be carried out by unskilled labour.

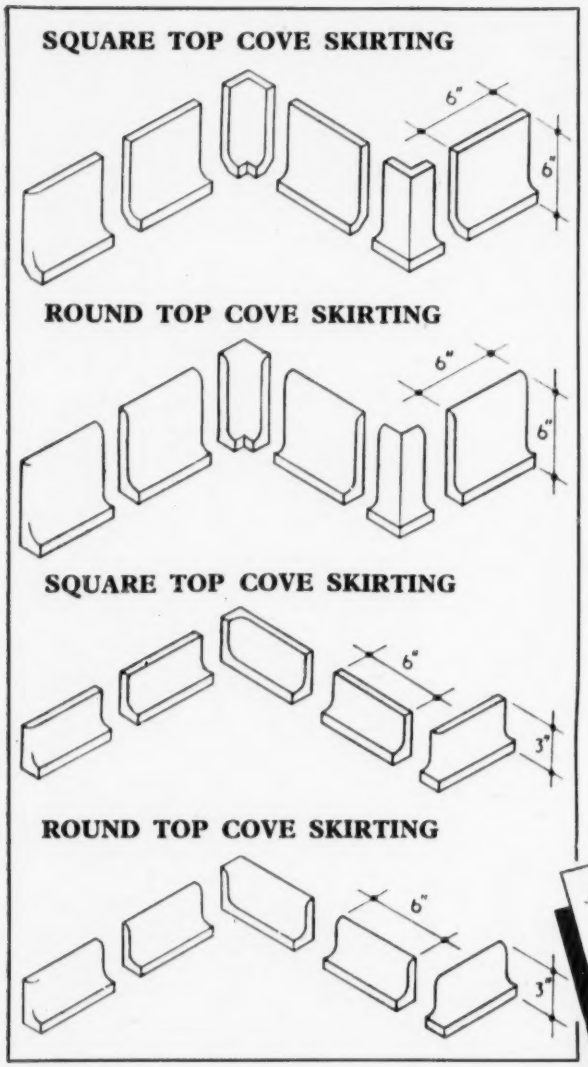
Further information from :

SCOTTWOOD FACTORY BUILT PERMANENT HOMES LTD.

13 Charterhouse Street, London, E.C.1.

For hard wear and resistance to abrasion

WHEATLY triton QUARRIES



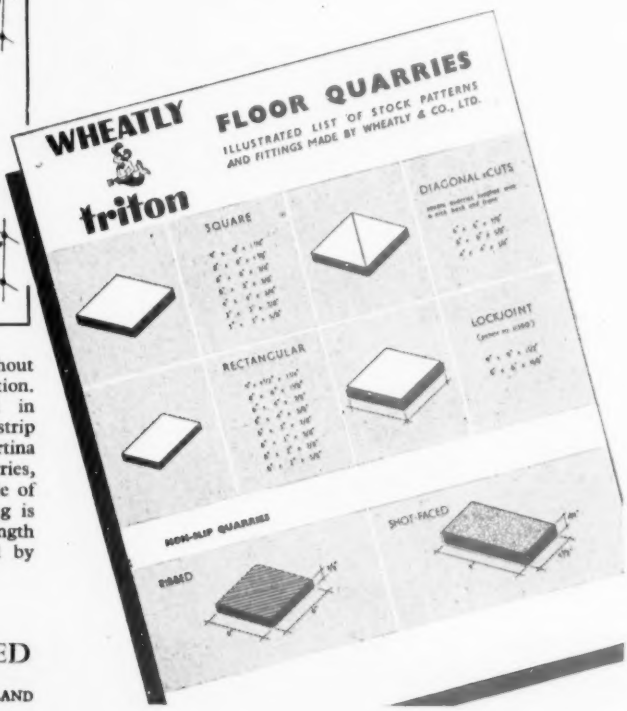
Wheatly Triton Floor Quarries are warm and pleasing in appearance and particularly suitable for flooring which is subject to heavy usage. Their surface is both durable and impervious under all climatic conditions. Occasional washing is the only maintenance required to preserve their appearance and colour.

PATTERNS AND COLOURS

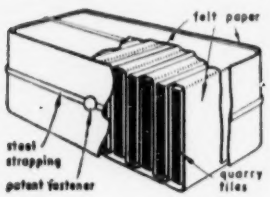
The illustrations (left) show a typical selection of quarry fittings which are available from stock. The range of colours is as follows : Red, Blue, Russet, Brown and Buff.

FURTHER INFORMATION

Further details of floor quarries and fittings will be forwarded upon request. This information leaflet illustrated below gives full details of the wide range of "TRITON" quarries and fittings which is available. Each pattern is illustrated with a $\frac{1}{8}$th scale isometric drawing, and correct descriptions, key numbers and principal dimensions are included. The leaflet has been specially designed to simplify the problems of detailing in the drawing office and of ordering. A copy will be forwarded on request.



EXPORT Our special quarry tile pack has ensured, without exception, the arrival overseas of floor quarries in perfect condition. The quarries are packed in bundles of about 20, with a strip of felt paper passed concertina fashion between the quarries, and then around the outside of the bundle. Steel strapping is then passed round the length of the bundle, and secured by a patent fastener.

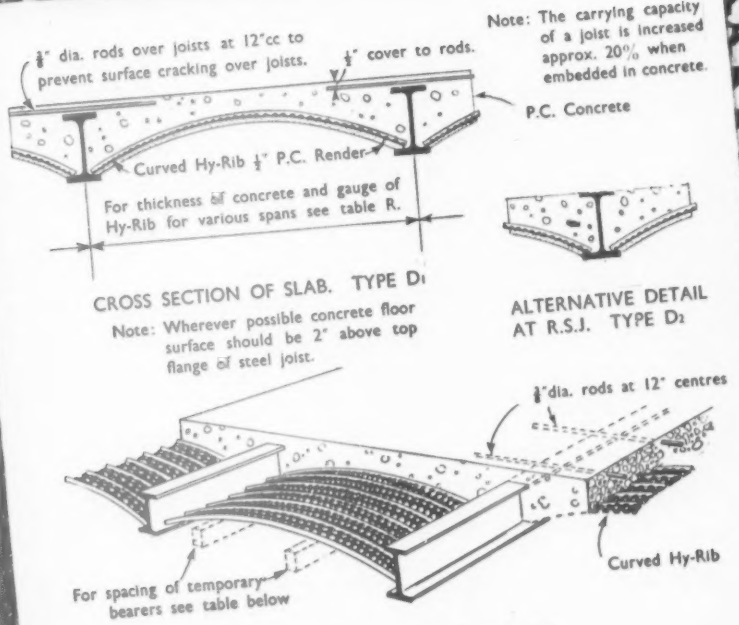


WHEATLY AND COMPANY LIMITED

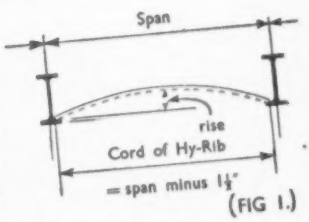
SPRINGFIELD TILERIES, TRENT VALE, STOKE-ON-TRENT, ENGLAND

HY-RIB

Combined Centering and Reinforcement for ARCHED FLOORS


⅜" dia. rods over joists at 12"cc to prevent surface cracking over joists.
½" cover to rods.
Note: The carrying capacity of a joist is increased approx. 20% when embedded in concrete.
P.C. Concrete
Curved Hy-Rib ½" P.C. Render
For thickness of concrete and gauge of Hy-Rib for various spans see table R.
CROSS SECTION OF SLAB. TYPE D1
Note: Wherever possible concrete floor surface should be 2" above top flange of steel joist.
ALTERNATIVE DETAIL AT R.S.J. TYPE D2
⅜"dia. rods at 12" centres
Curved Hy-Rib
For spacing of temporary bearers see table below
SKETCH SHEWING SLAB TYPE D1

Spacing of temporary timber supports.
None required for spans up to 3' 0"
One required for spans from 3' 0" to 4' 6"
Two required for spans from 4' 6" to 6' 6"
Three required for spans from 6' 6" to 8' 0"



(FIG 1.)

Write for a copy of the HY-RIB Handbook.

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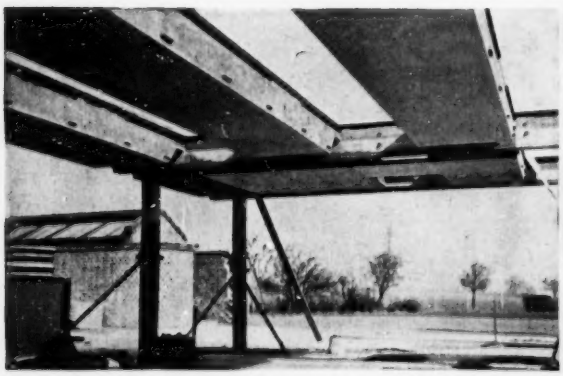
Norway, Sweden, Portugal, Iraq, Iran, Saudi Arabia, Lebanon, Syria, British East Africa (Kenya, Uganda, Tanganyika and Zanzibar), British West Africa (Nigeria and Gold Coast), Northern and Southern Rhodesia and Nyasaland, Union of South Africa and Natal, British West Indies, Singapore, Federation of Malaya, North Borneo, Hong Kong, Mauritius.

THE TRUSSED CONCRETE STEEL CO. LTD., TRUSCON HOUSE, LOWER MARSH, LONDON, S.E.1. *Tel.:* **WATerloo 6922**

4.849

THE PUNT SYSTEM

- *light weight long span roof units*
- *interchangeable panels*
- *quick and easy erection*
- *designed on a 40 in. module*

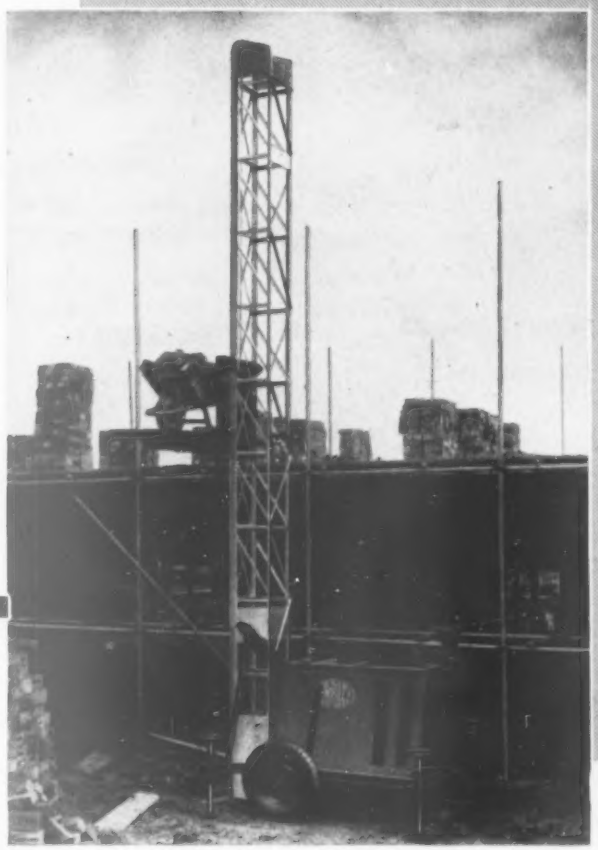


Mk I Punts supported on beams

Mk II Punts supported on loadbearing walls

C.D. PRODUCTIONS LTD., 30 UXBRIDGE ROAD, LONDON, W.12. SHE 1281

HEMEL VERTICAL MOBILE HOISTOWER



- The HEMEL Mobile Hoistower is a completely self-contained unit—it is mobile—and can be set to work on a site within a few minutes without any additional supports or wall fittings.
- Platform 66" × 30" delivers at 18ft. from ground level. 8ft. extensions can be added as necessary, each extension requiring one tie-back to the scaffolding.
- Capacity, 7½ cwts. at 80 feet per minute.
- Fully controlled by ONE OPERATING LEVER only.
- Standard fittings include Automatic TOP Limit stop, and safety gear to arrest fall of platform in event of rope failure. Four screw jacks are provided giving complete STABILITY while machine is in operation. Each jack is fitted with quick action locking device.
- The HEMEL Mobile can be fitted with Petrol or Diesel Engine or with Electric Motor.
- Mounted on full size pneumatic wheels.
- All HEMEL Hoisting Equipment is manufactured to comply with the Building (Safety, Health and Welfare) Regulations Act, 1948.

Illustrated descriptive matter forwarded on request.

The Hemel Mobile Hoistower is a sound engineering job built to stand up to the hard work demanded of such machines on building sites. It is designed for quick and easy erection and can be extended to any reasonable height by adding complete 8 feet sections as required. Raising, lowering and holding of the load is effected by the movement of ONE lever only.

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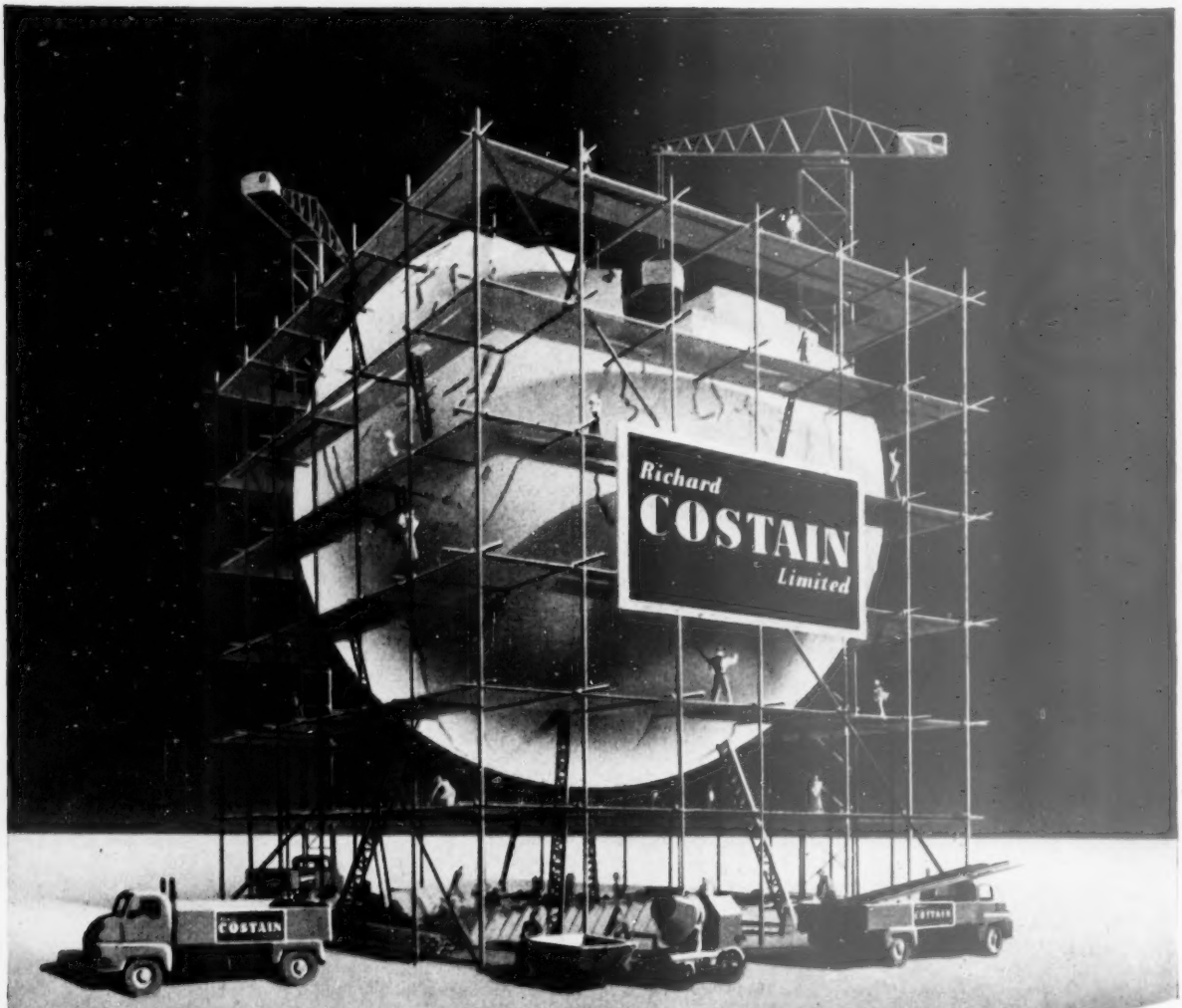

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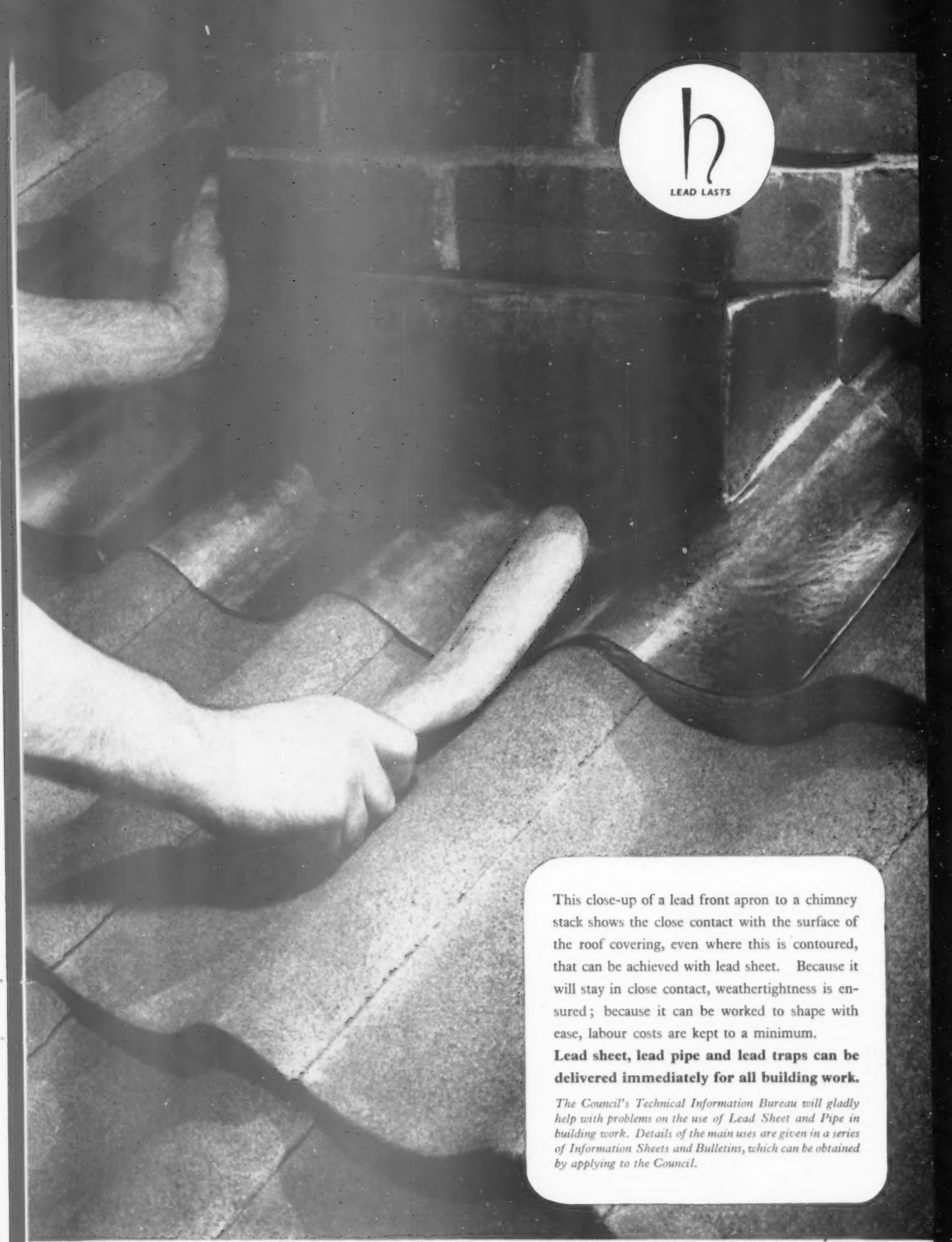

This close-up of a lead front apron to a chimney stack shows the close contact with the surface of the roof covering, even where this is contoured, that can be achieved with lead sheet. Because it will stay in close contact, weathertightness is ensured; because it can be worked to shape with ease, labour costs are kept to a minimum.

Lead sheet, lead pipe and lead traps can be delivered immediately for all building work.

The Council's Technical Information Bureau will gladly help with problems on the use of Lead Sheet and Pipe in building work. Details of the main uses are given in a series of Information Sheets and Bulletins, which can be obtained by applying to the Council.

LEAD TECHNICAL INFORMATION BUREAU, 90 EBURY STREET, LONDON, S.W.1 TELEPHONE: SLOANE 0474

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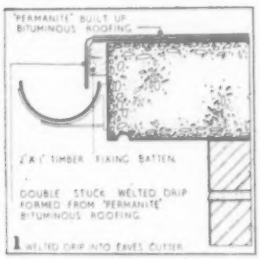
"PERMANITE" BUILT UP BITUMINOUS ROOFING
2"x1" TIMBER FIXING BATTEN
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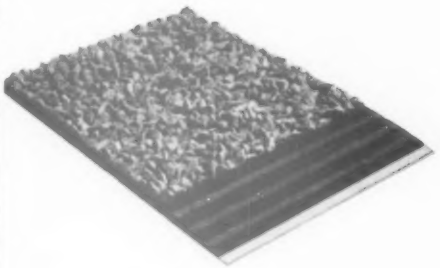
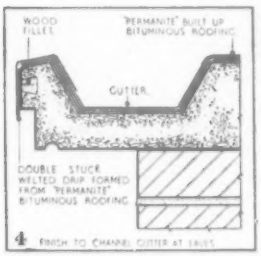
1 WELTED DRIP INTO EAVES GUTTER



SPECIFICATION

2 or 3 layers of "Permanite" Bituminous Felt, bonded with hot bitumen and finished with a surface dressing of granite chippings.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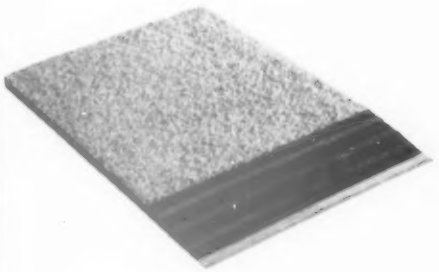
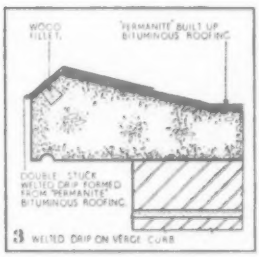
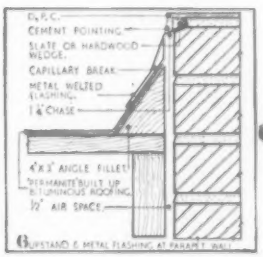
"PERMANITE" BUILT UP BITUMINOUS ROOFING
GUTTER
DOUBLE STUCK WELTED DRIP FORMED FROM "PERMANITE" BITUMINOUS ROOFING
4 FINISH TO CHANNEL GUTTER AT EAVES

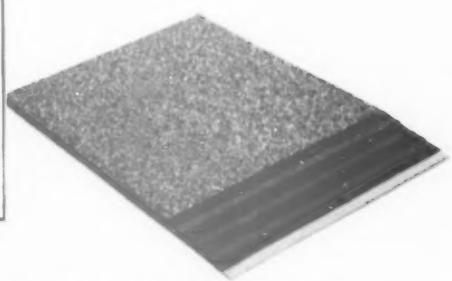


SPECIFICATION

2 or 3 layers of "Permanite" Bitumitous Felt, bonded with hot bitumen and finished with a surface dressing of heat reflective white spar chippings.


WOOD FILLET
"PERMANITE" BUILT UP BITUMINOUS ROOFING
DOUBLE STUCK WELTED DRIP FORMED FROM "PERMANITE" BITUMINOUS ROOFING
3 WELTED DRIP ON VERGE CURB





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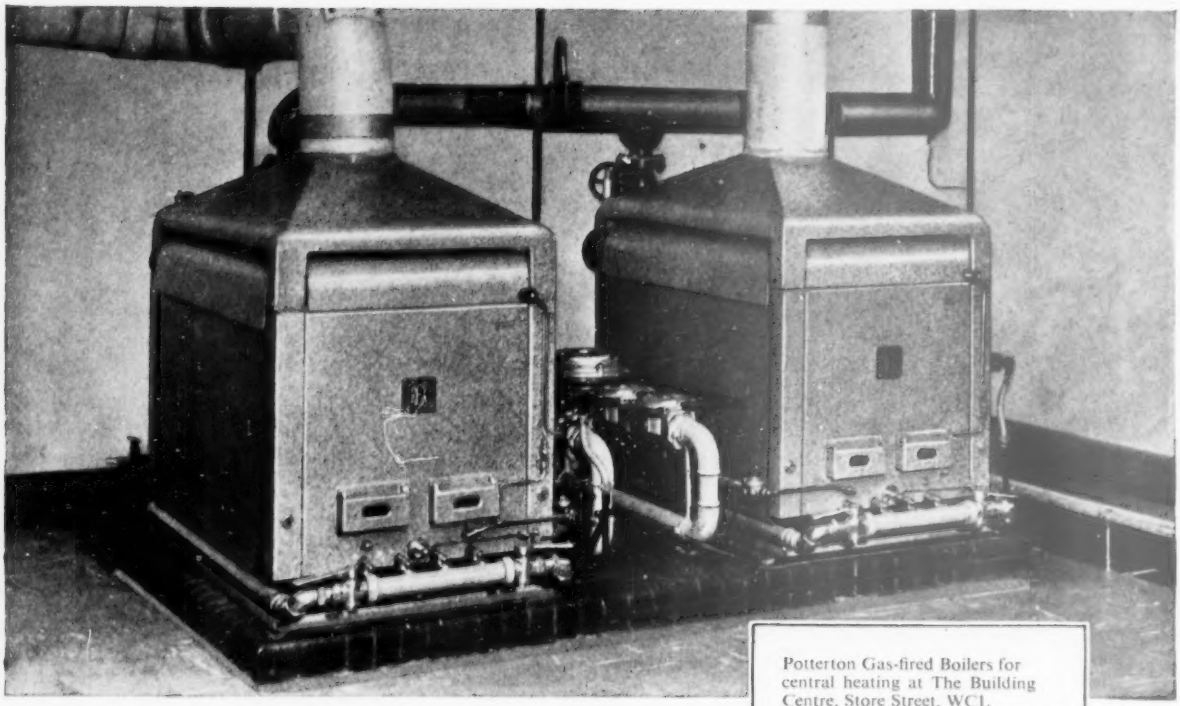

Potterton Gas-fired Boilers for central heating at The Building Centre, Store Street, WC1. Installation by Troughton & Young (Heating) Ltd, 3 Catherine Place, SW1

The Building Centre called for

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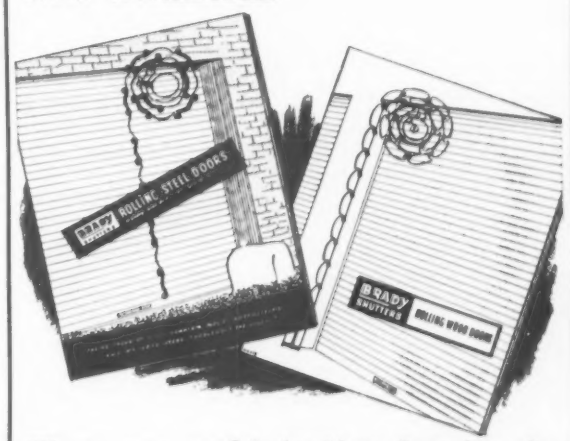

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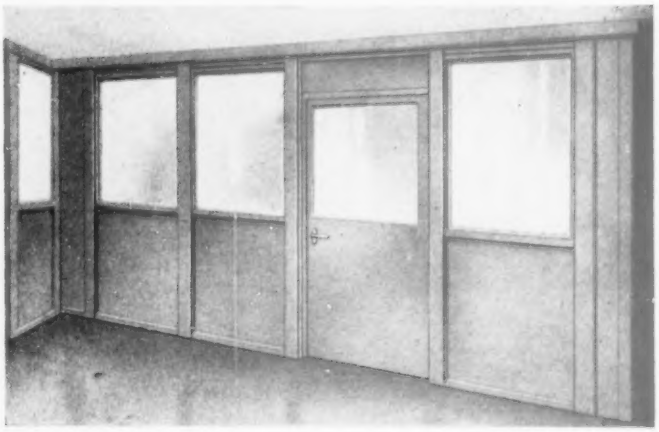
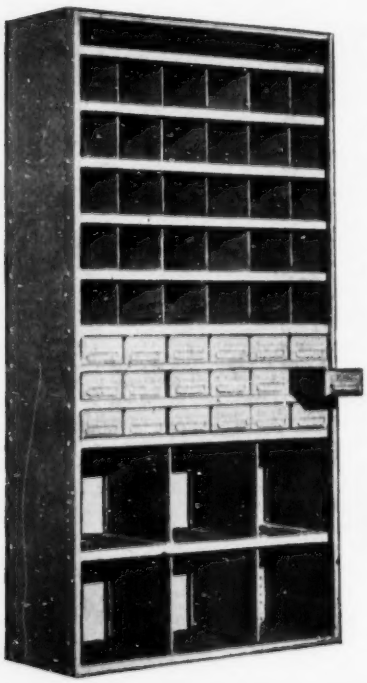


BINNING



This is the 6ft. high all steel Binning that is rapidly becoming standard whenever long service and maximum convenience have to be considered alongside questions of cost. Various types are available, each complete in itself, yet all are designed to combine with other units in the series to form a unified, streamlined storage system. The capacity of the compartments can be varied to meet individual needs. Drawers are slotted for interior dividers. Send for illustrated, descriptive folder.

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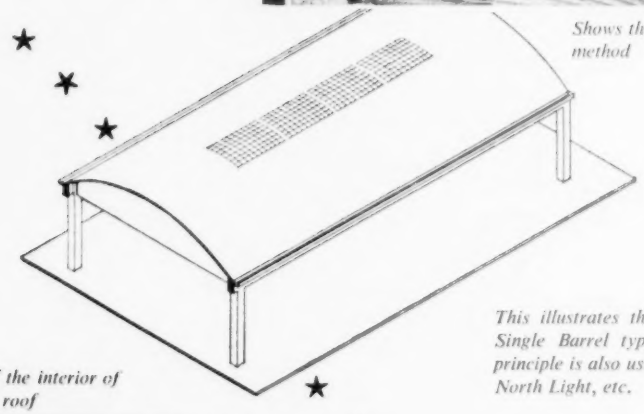
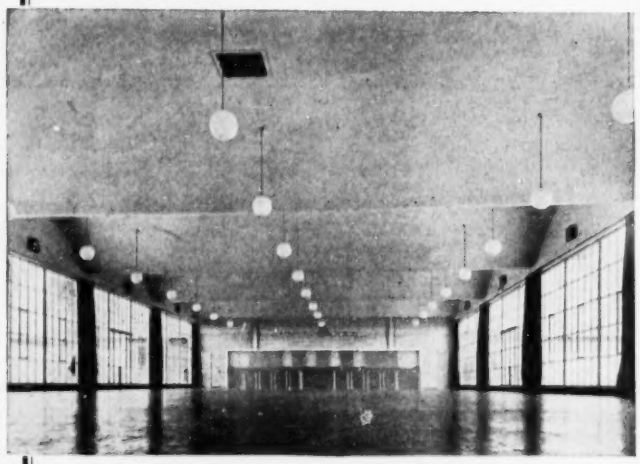
The Bradford Barrel Vault Roof

Shows the special reinforcement method



This illustrates the simplest form—the Single Barrel type. The Barrel Vault principle is also used for Multiple Barrel, North Light, etc.

Shows the clear surface of the interior of the Bradford Barrel Vault roof



consists of a thin, reinforced-concrete shell, stiffened by beams to carry the usual roof loads over considerable spans. The range is up to 200 feet. The advantages are many; great economy in erection and in upkeep, high resistance to fire, and not least, the fact that the interior surface is smooth and unbroken by members, thus allowing the highest lighting efficiency and permitting no lodgment for dust.

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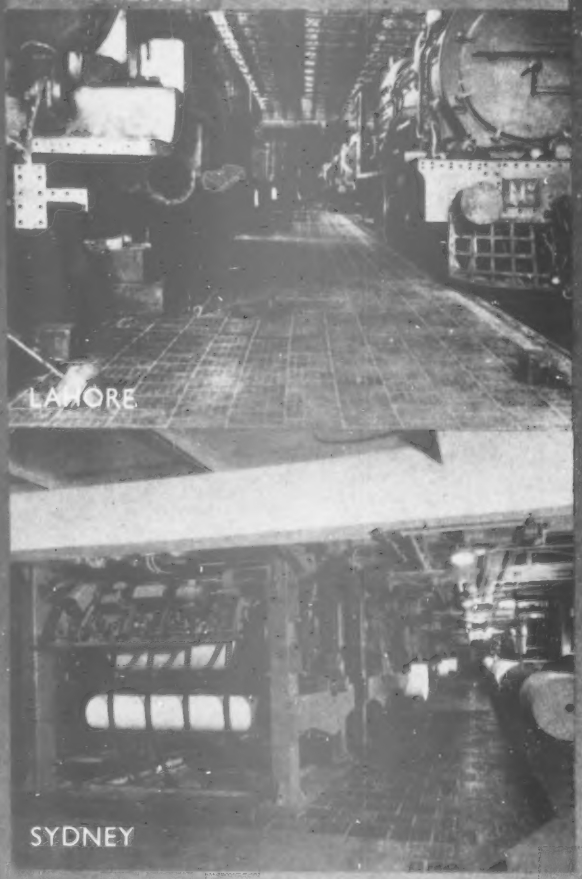
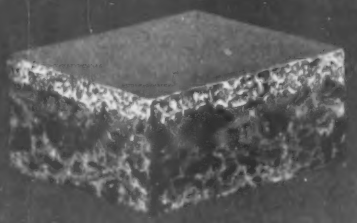
Stelcon INDUSTRIAL FLOORS, AT HOME AND ABROAD

MANCHESTER



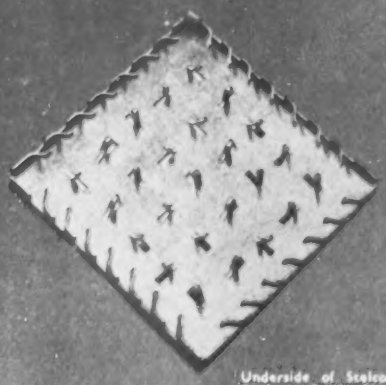
LAHORE

SYDNEY



Section of a Stelcon Steel Clad Flag which shows clearly it's great density.

STELCON provides dustless hygienic floors of great strength and durability. That is why they can be seen in factories and on Docks in a great many parts of the world. It is just as easy for us to deliver overseas as it is to deliver here, and your enquiries will receive immediate attention.



Underside of Stelcon Anchor Steel Plate showing the 53 Anchors which grip the concrete.

STELCON (INDUSTRIAL FLOORS) LIMITED

CLIFFORDS INN, LONDON, E.C.4.

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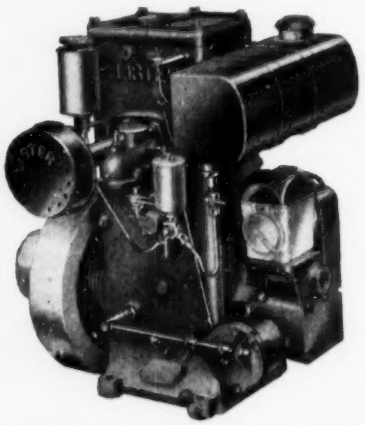

THE LISTER 1½ 2h.p. TRACTOR VAPOURISING OIL ENGINE.

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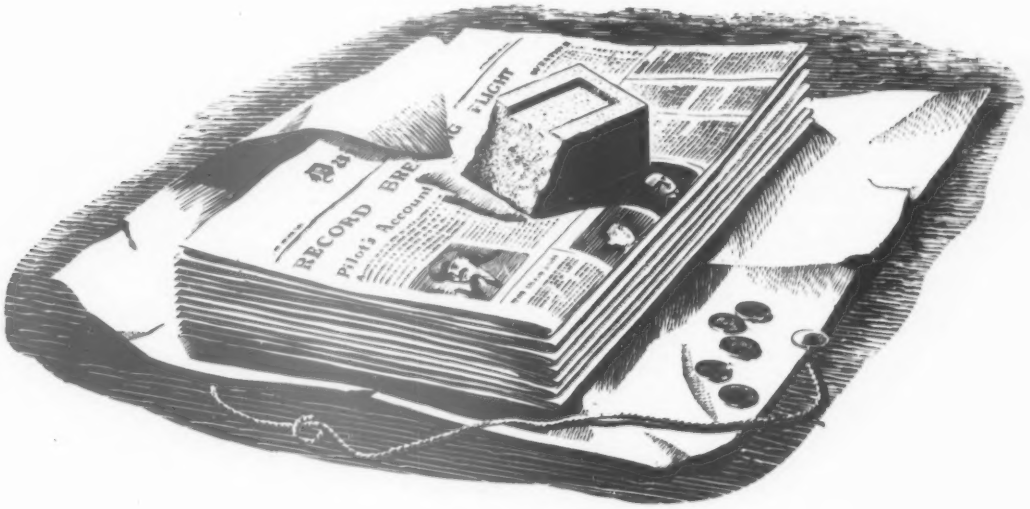

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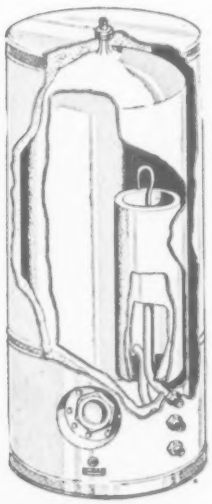

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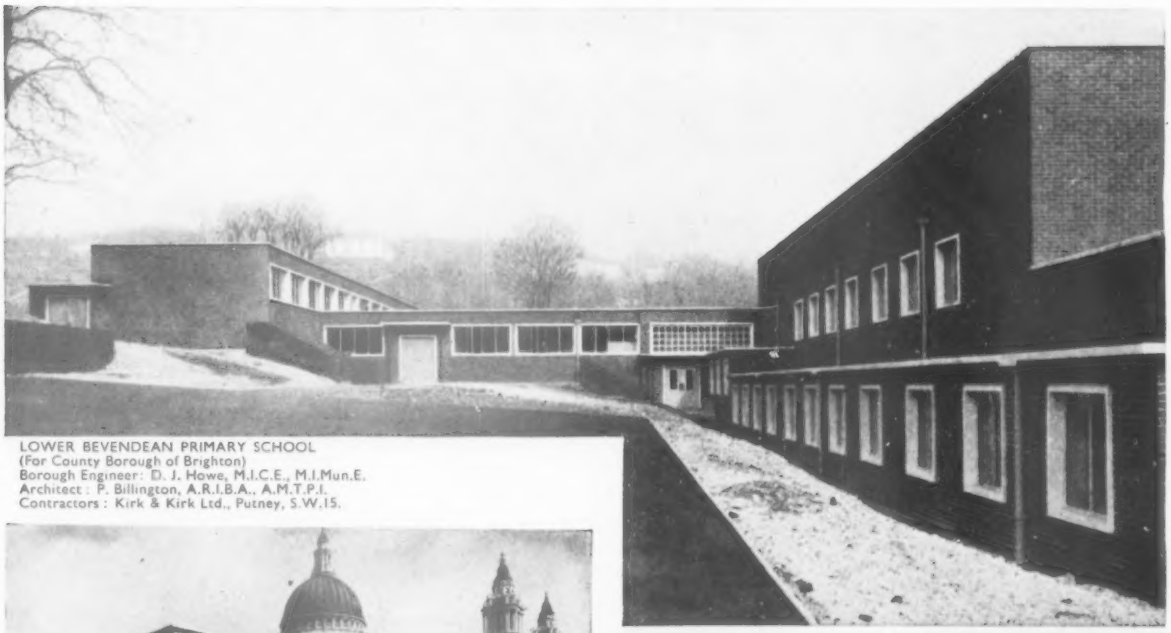

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Architect: P. Billington, A.R.I.B.A., A.M.T.P.I.
Contractors: Kirk & Kirk Ltd., Putney, S.W.15.

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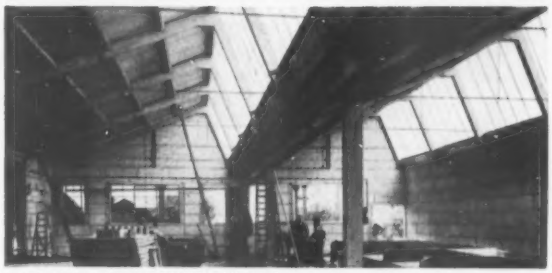
BRITISH ELECTRICITY AUTHORITY, Paternoster Square E.C.
Architects: British Electricity Authority Engineers.
Contractors: A. Roberts & Co. Ltd., London, S.W.1.



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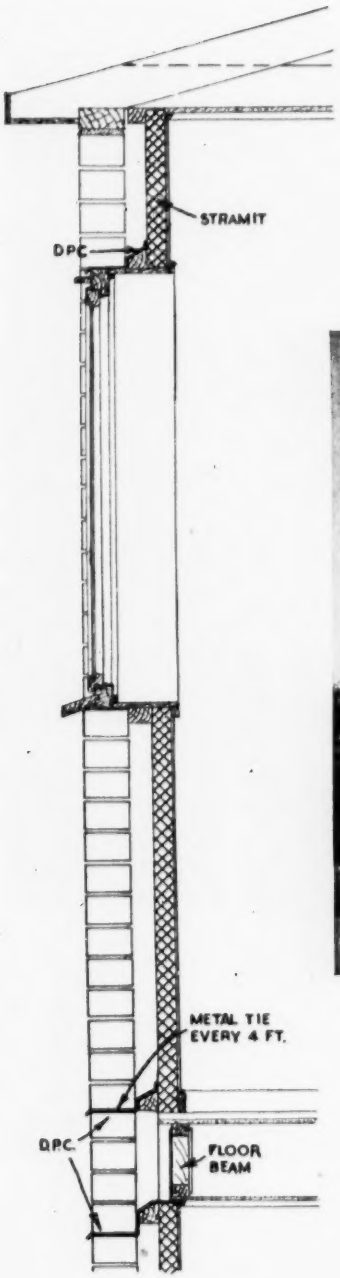

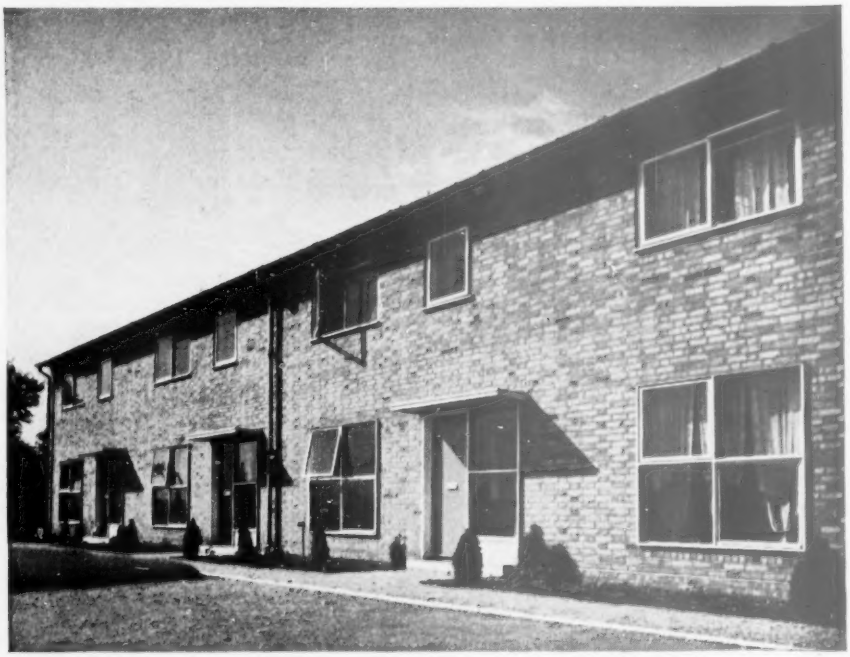

Terrace Houses at Uxbridge designed by Messrs. Yorke, Rosenberg and Mardall.

Six months' delivery is now being quoted for certain types of brick. With this in mind the possibilities of the type of construction illustrated will commend themselves, especially when the result is as attractive as the photograph. Further particulars are available on request.

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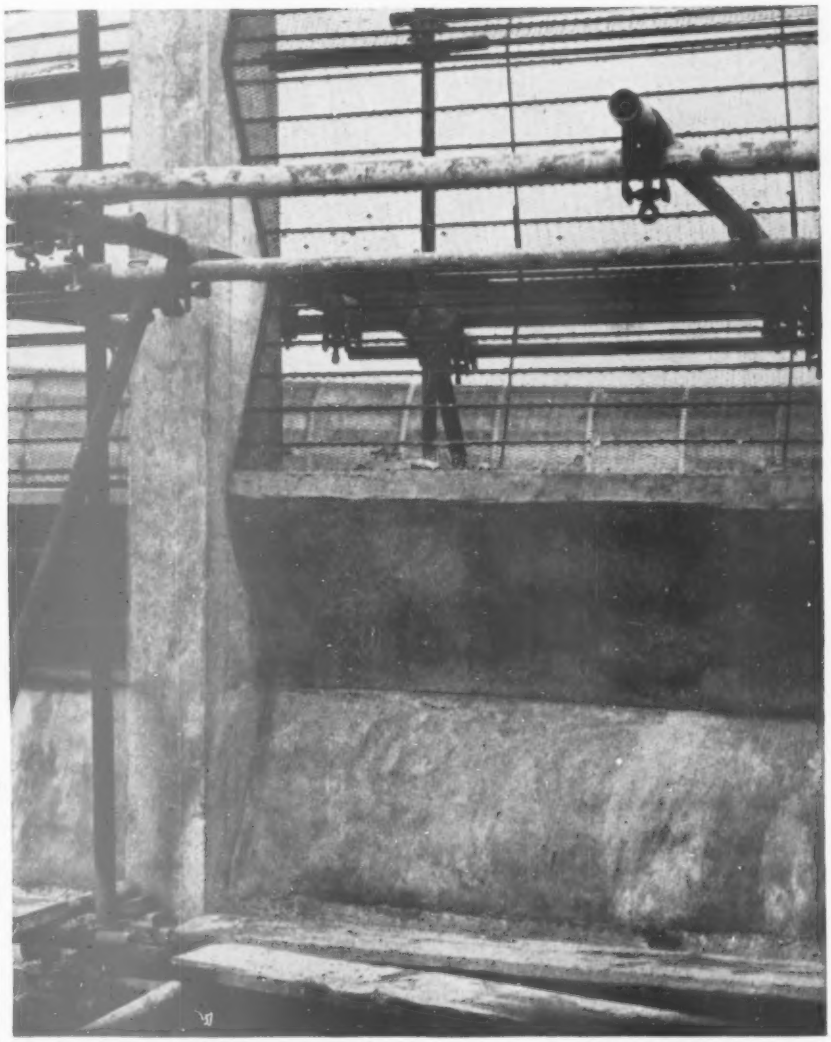

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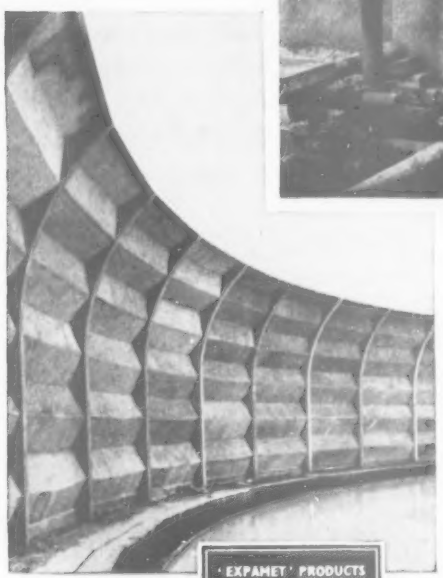

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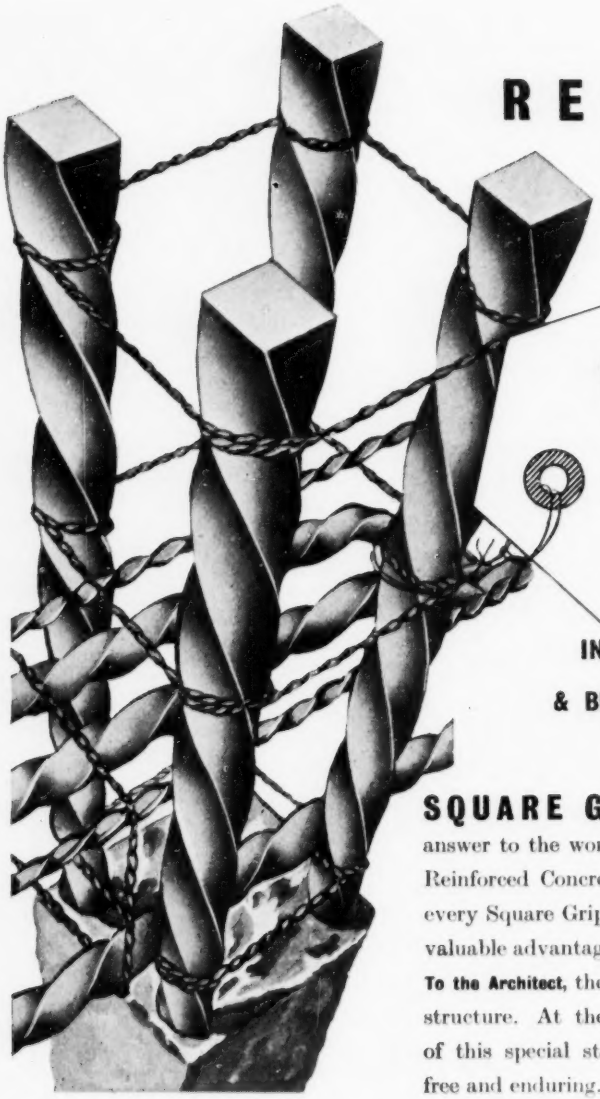

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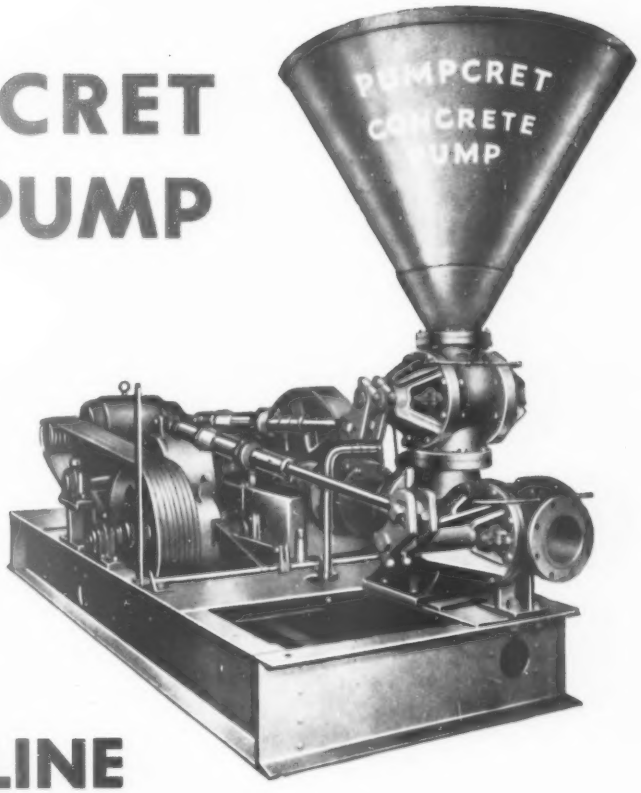

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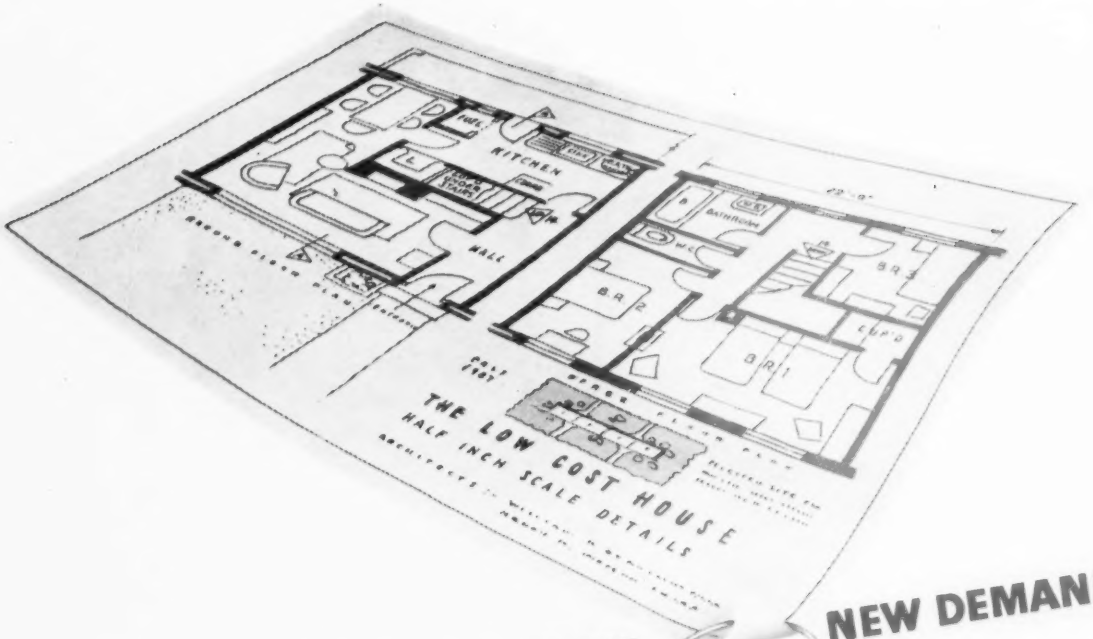

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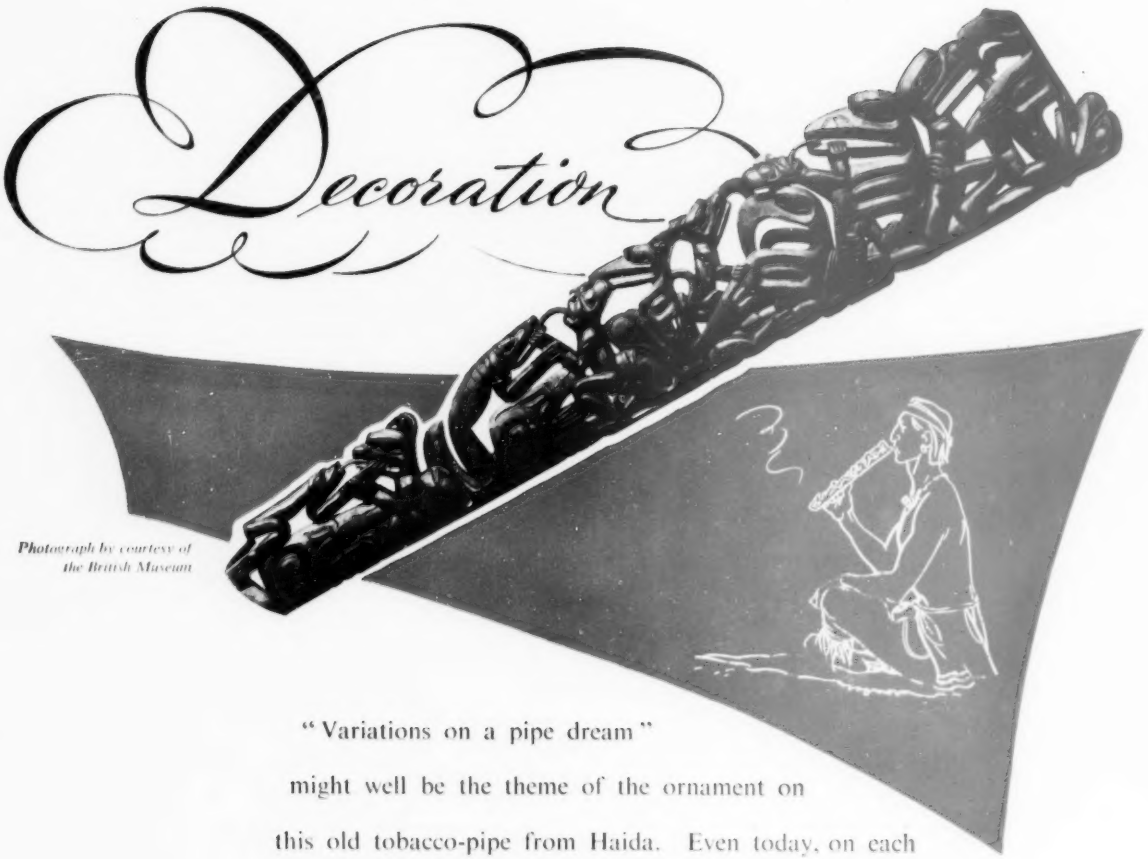

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From "Novo Teatro di Machine et Edificii", by Vittorio Zonca, 1656.

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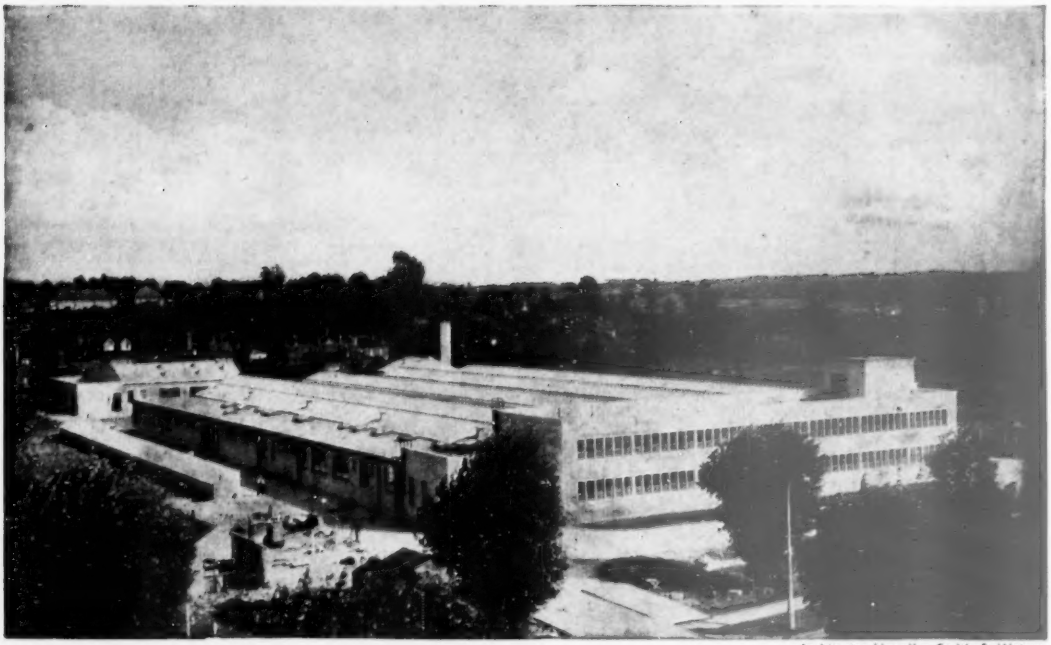

Reproduced by courtesy of "The Builder"

Architects: Llewellyn Smith & Waters.
Contractors: E. O'Sullivan, Ltd.

Illustrated above is the New Factory at St. Mary Cray, Kent, built for C.A.S. (Industrial Developments) Ltd., for occupation by Morphy-Richards Ltd. On this important contract Cementone No. 1 Permanent Colours for Cement and Cementone No. 8 Liquid Concrete Hardener were used for concrete flooring work and Cementone No. 9 Waterproof Stoneface Composition for decorative work.

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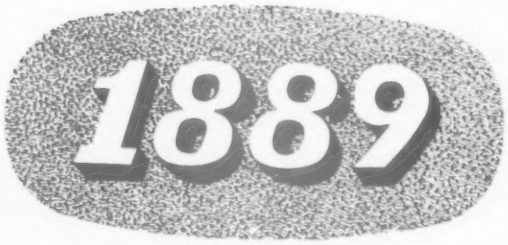

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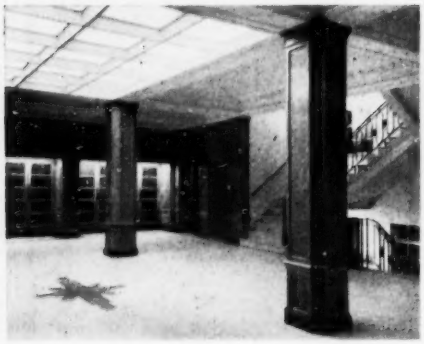

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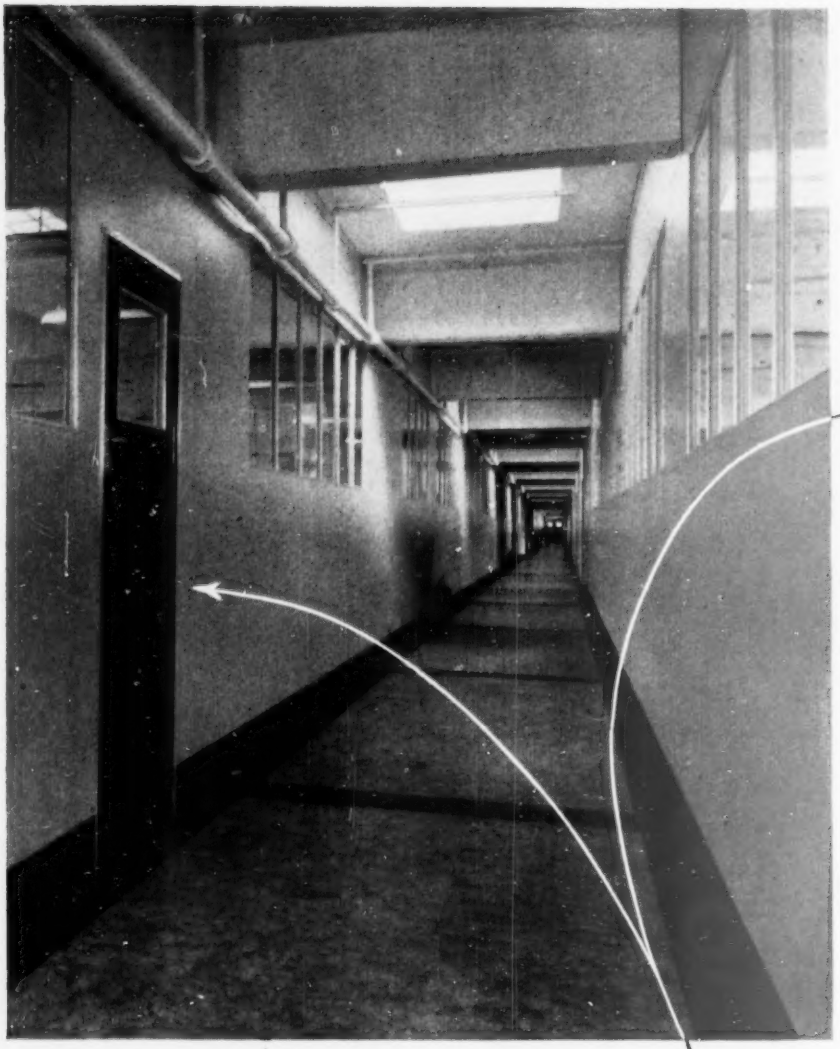

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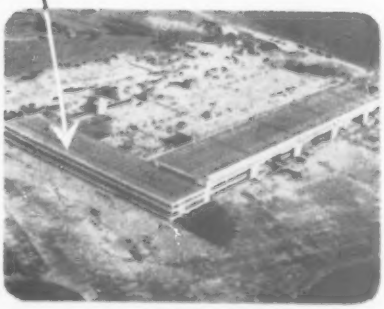

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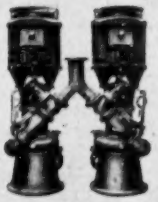

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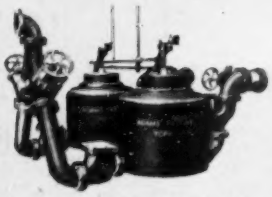

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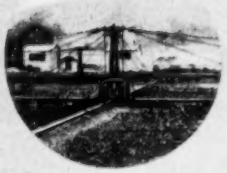

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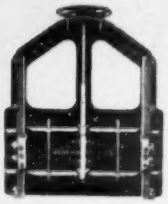

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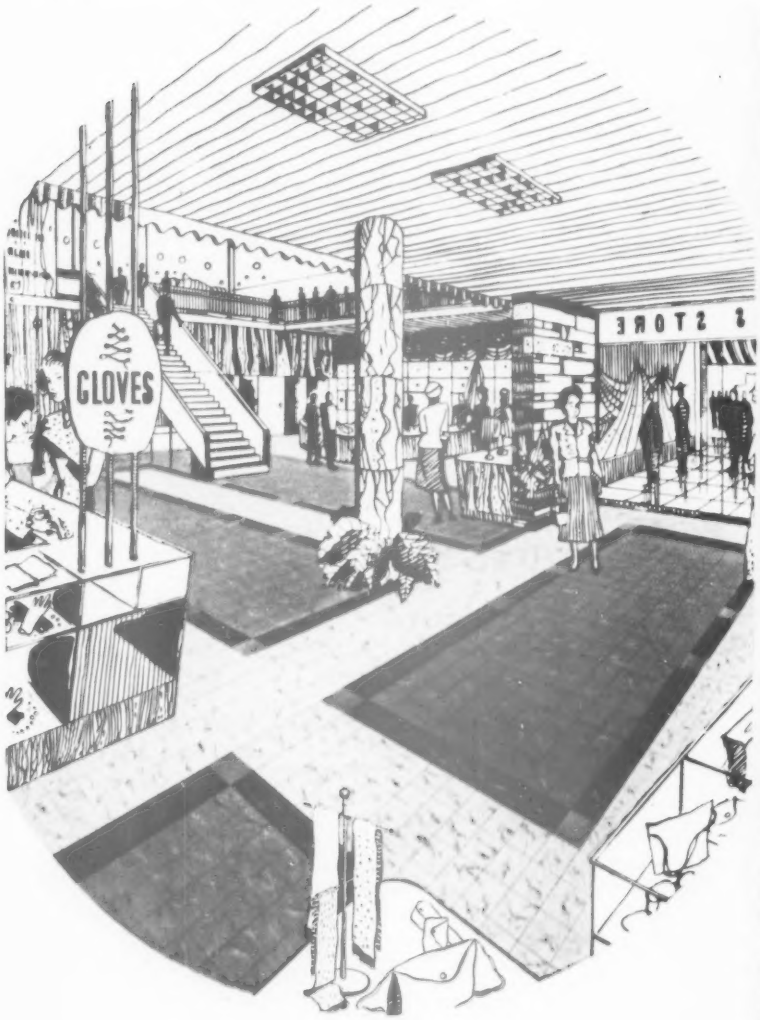

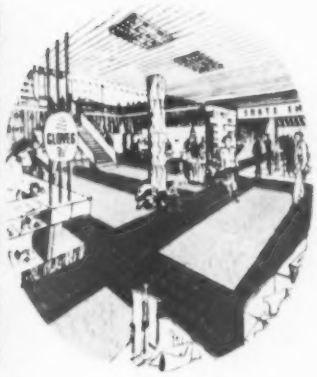

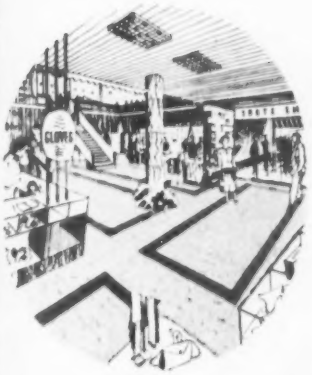

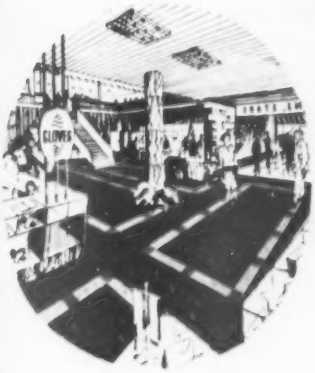

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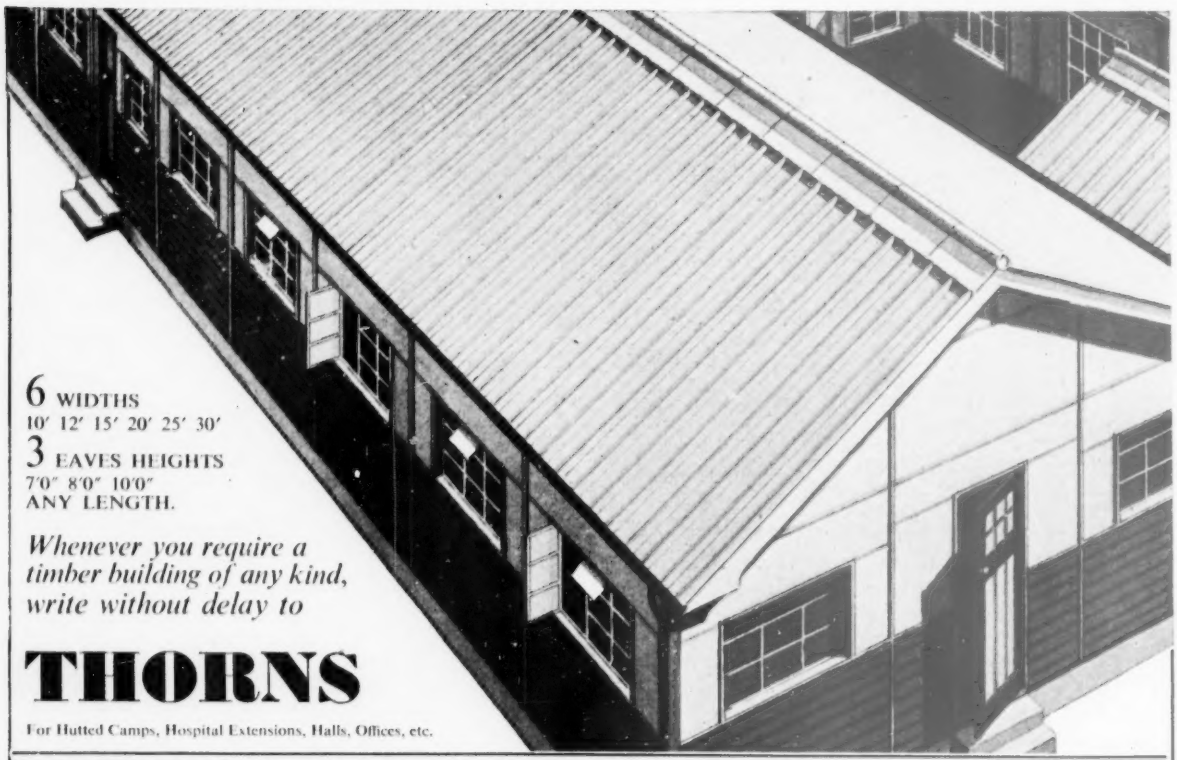

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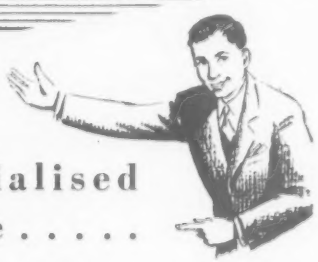

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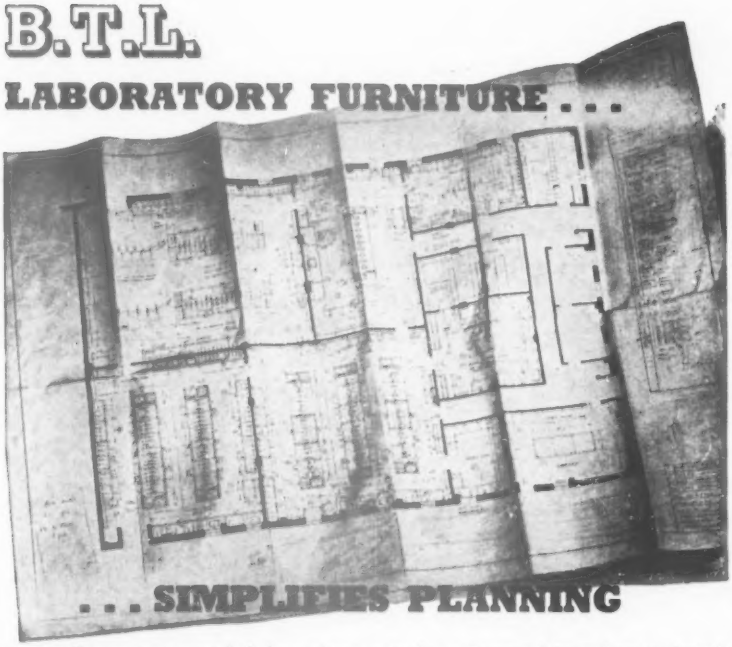

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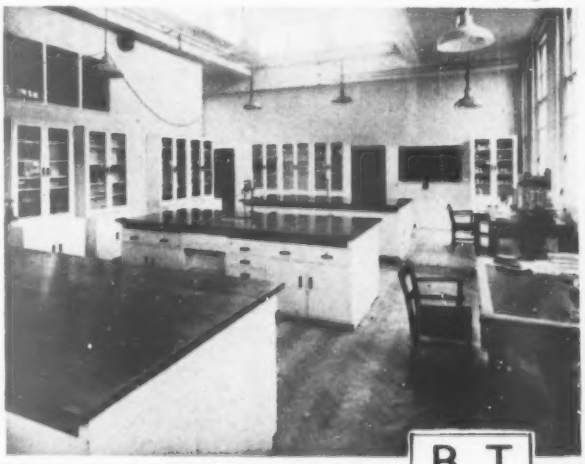

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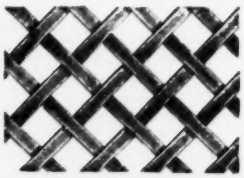

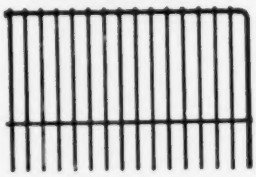

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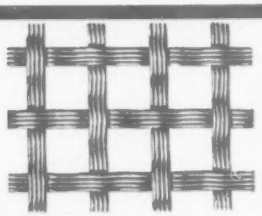

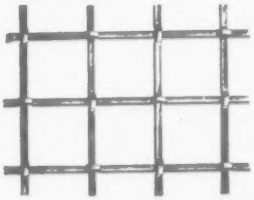

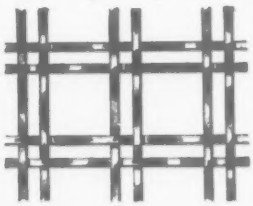

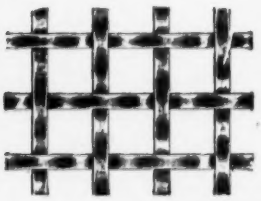

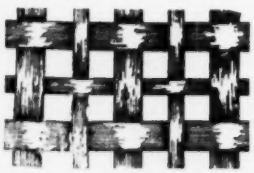

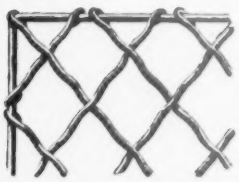

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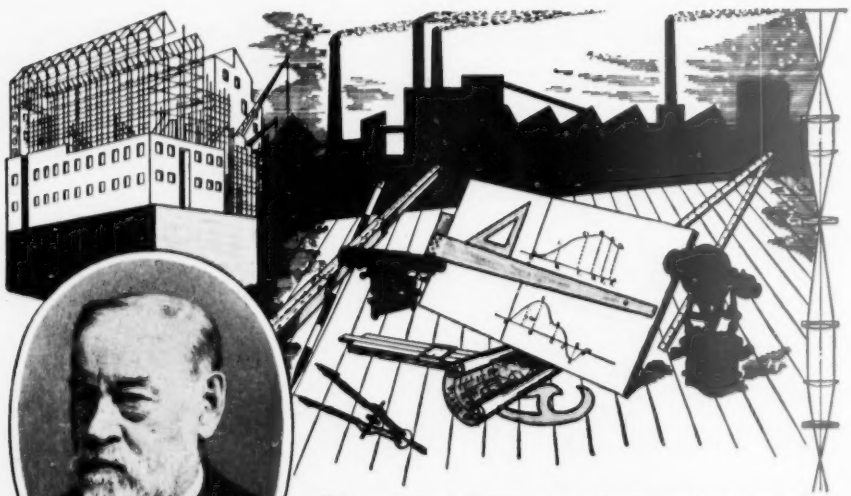

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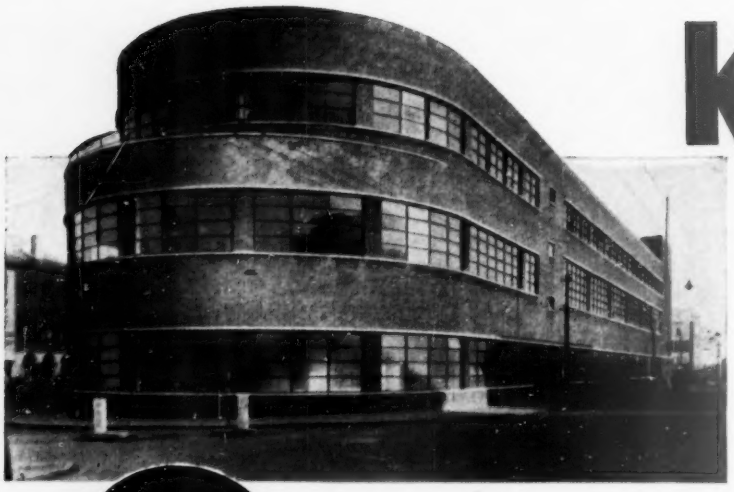

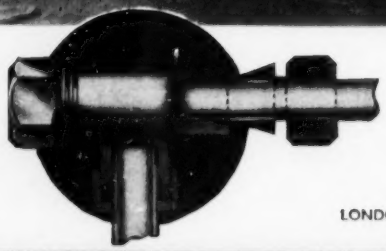

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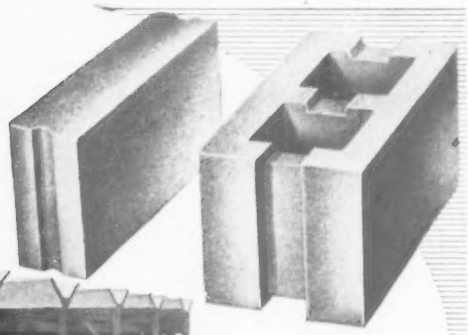

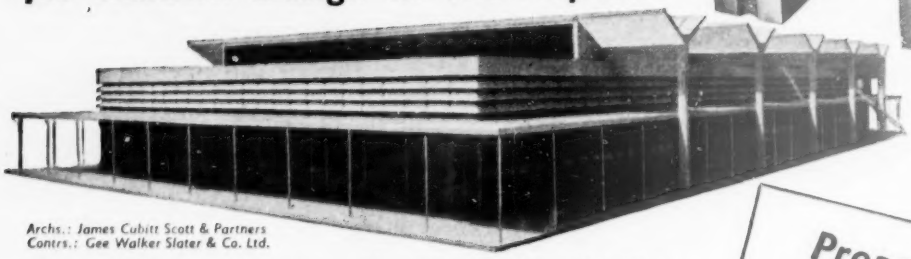

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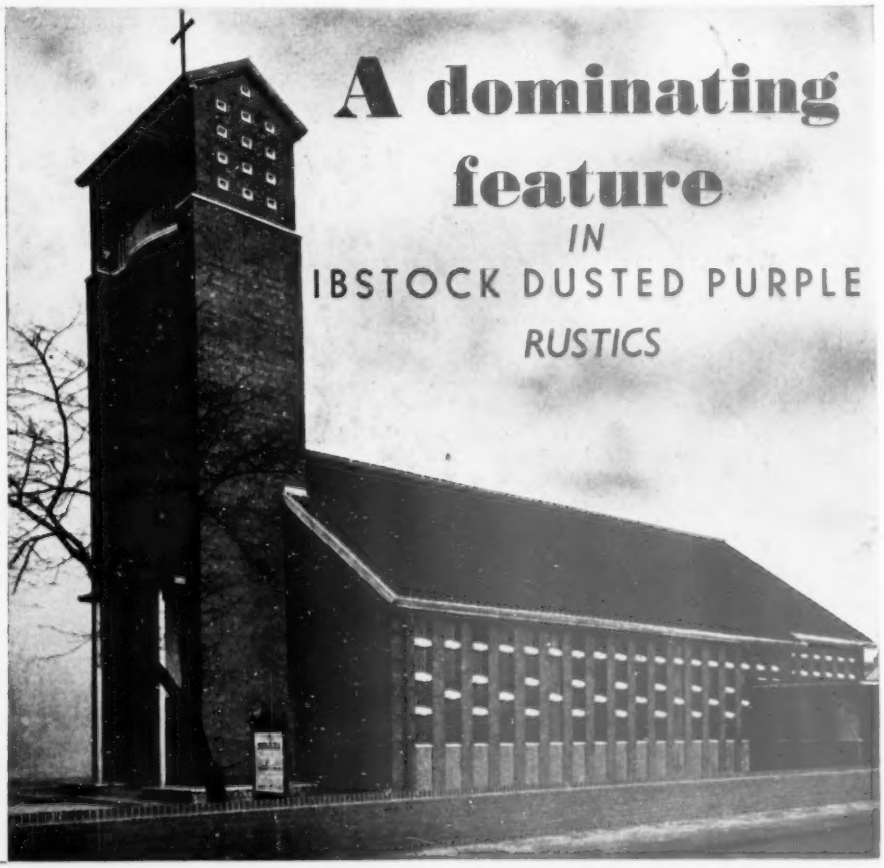

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Vol. 203 No. 26

THE ARCHITECT & BUILDING NEWS

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RETROSPECT

THE Conference is over; the papers have been published; the edited reports of the discussions have been handed out and those journals which think their readers may be interested have duly used those handouts. What can be the general comments upon the event and what may be its results?

There can be little doubt, in the first place, that any discussion of "hot" questions does some good, if only to exhaust what might be otherwise more or less dangerous steam. In the case of the Canterbury conference, if we can trust to our own hearing and then read between the permitted lines, there was a good deal of subterranean steam that was just as well released to the upper air. Whether it will be now finally dissipated and lost remains to be seen. What is more certain and probably helpful is that private and official architects have had to face their individual and related problems on the free ground of a confidential professional conference, uninhibited by the publication of full reports or the record of formal minutes. It is to be hoped that a better understanding of the essential co-operation that is necessary between the two sides of the post-war profession has been the result of the talks. Whether a permanent unity of the profession has been advanced is another matter.

The prime facts which have emerged are that whatever is wished for by the profession and whatever it may have agreed as desirable, there exists throughout the country, on official and private sides alike, a very great variety of quality, experience and types of administrative approach to what should be generally the same problems. The methods of Local Authorities, both in Committees and in departmental activities differ widely; the influence of the responsible architectural officer is sometimes a deciding factor, sometimes the reverse. The personalities of committees, sometimes those of semi-experience, sometimes those over-ridden by political bias, are in turn dominant factors. Many of these factors remain entirely uninfluenced by the policy or advice, sometimes good, sometimes uncertain, of the central Government departments.

There are some other emergent facts which concern the particular rather than the general in respect of this conference. One was the apparent overweighting by numbers of official professional attendance as opposed to that of private practitioners. In our editorial comment on the conference preparations, last April, we suggested this might be expected, however undesirable any ill-balance of this sort may be considered by all concerned.

Another point is related to the subjects of the formal papers and discussion of the conference; here we would venture to suggest that a clear-cut issue for debate is better than several subjects, any one of which may be used to waylay the others, or be dragged in to avoid the awkwardnesses that may be attendant upon a full examination. In the present instance the subject was "Schools," with special sub-reference to the relationships of the official and the private architect; both subjects were so important that either would have been sufficient to keep the conference busy. As it was both tended towards side-tracks or to become stalking-horses.

If we might venture here to suggest a subject for the next British Architects' Conference, it would be the question of the architects' responsibility for quality in building materials and components, extended to a discussion of the deterioration of quality in workmanship and the decline of building-trades crafts. Education and experience are the key points of such a discussion and in these fields there can be little doubt that publicity and public relations play a very large part; it is therefore a subject which architects and the R.I.B.A. could well ponder, not only for its own sake, but for a better understanding of the place of these things in the national community. Skill and competence are born of training and practice; the public knows little of the training that is necessary, but the ultimate confidence of the public arises from the visible and successful practice of skill and in buildings this is the entire team's responsibility. In this the architect can be a leader whose profession can be as well respected as those of the doctor and the lawyer. It may be that as an individual the architect can do little, but for a united professional force there is much to be done.

Rain marred the Garden Party at St. Augustine's College, so tea was served in the crypt and dining hall.

EVENTS AND COMMENTS

THE BRITISH ARCHITECTS' CONFERENCE

I missed the informal reception on the first evening and the President's inaugural address. The Mayor of Canterbury told me that he considered that Mr. Howard Robertson had wagged an admonitory finger at contemporary architecture. I find this difficult to believe. The Mayor is, I understand, among those opposed to the development work going on in Canterbury under the very able city architect and planner Mr. Hugh Wilson. As I said before, Mr. Wilson has a hot seat. He was much in evidence at the Conference and had produced a very good exhibition of architecture at the Leas Cliff Hall.

The first session, held in the Chapter House of Canterbury Cathedral was spoiled for those at the back by the bad acoustics. I think that this was more the fault of the speakers than the organizers for one after another they resolutely refused to use the microphone. I know from long experience that speakers can be perfectly audible in this building.

On Thursday afternoon the garden party at St. Augustine's College, Canterbury, was rained off and the conference took its tea in the college dining hall and in the crypt under the library. The band of the Buffs played to itself in a porch at the top of a flight of steps. In the evening the Mayor of Folkestone gave a reception at the Leas Cliff Hall where there was dancing and a cabaret. Three Chinese as well as tying themselves and each other into improbable knots also balanced spinning plates on the ends of sticks. These accomplished orientals were preceded by a troupe of teen-agers suitably clad, who danced and tapped their feet.

The Friday session I have already mentioned. The afternoon was filled with tours in the country and more rain. I personally found myself drinking tea on Folkestone Central Station at half past four with a small group of dis-

BRITISH ARCHITECTS' CONFERENCE PICTURES

Leaving Leas Cliff Hall after Friday's session :— Raglan Squire. Noel Tweddell from Basildon and Clifford Culpin. Dex Harrison and Ernest Jones from Australia.

A group of Conference Members including Howard Robertson, the President, and C. D. Spragge, Secretary, R.I.B.A., leaving Leas Cliff Hall.

The group includes Gontran Goulden, Leslie Wood, F. R. S. Yorke, Hugh Wilson, Robert Townsend, Raglan Squire and Robert Paine, President South-eastern Society of Architects.

tinguished architects. The Conference Banquet, held in the Simon Langton Girls' School, Canterbury, was attended by some 300 members and guests and was very well done. The speeches were not all as sparkling as that of the President, who was in the greatest form throughout the conference. In replying to the toast of "Our Civic Hosts," the Mayor of Canterbury reviewed the Royal Academy Summer Exhibition unfavourably and advised us to wear polarized glasses there; the Mayor of Folkestone more wisely spoke of the advantages of Folkestone as a holiday centre. The High Sheriff of Kent, Sir Henry D'Avigdor-Goldsmid, spoke most sensibly about modern architecture, and Mr. Robert Paine, the president of the South-eastern Society of Architects, and who was the head man behind the conference, replied equally sensibly. He furthermore drew attention to the people who had worked behind the scenes to make the conference a success. Sir Lancelot Keay, with stately and measured tread, proposed the health of the guests and Mr. Schofield Morris, President of the Royal Architectural Institute of Canada, replied by telling us something of the architect's life in Canada to-day. Mr. Leslie M. Thomas, M.P. for Canterbury, who backed him up, told some well-worn stories, could not resist several tilts at the Socialist member for Faversham, and finished up with a tremendous harangue about the need for erecting buildings worthy of our time and Coronation year on the bombed sites of Canterbury.

I enjoyed the conference very much but, looking back it appears to have been more a social occasion than a conference in the true sense. Indeed, could a two-day meeting be very much more? There is perhaps a feeling that the two working sessions are only there to justify the thing being held at all. I have no doubt that almost everyone found the papers and discussion interesting but I doubt whether anyone is very much wiser, although it is possible that enthusiasm may have been stimulated. Some people certainly found the talk of new developments entirely unacceptable and spent a good deal of time mut-

R. E. Enthoven (Vice-President R.I.B.A.), Ernest Seel and Victor Smith, Mrs. Aslin, C. H. Aslin (Vice-President R.I.B.A.).

M.o.W. postcard, half-size.

tering to themselves and their neighbours. There were, as might be expected, a large number of official architects at the conference, but there were also quite a number of the younger men in private practice.

I fear that most of the photographs of delegates which embellish the previous pages make them look somewhat dour. This was, I am sure, entirely the fault of the weather.

In conclusion I must mention the excellently produced handbook which was edited and prepared by a committee with Mr. Robert W. Paine as chairman. It is well worth keeping as a souvenir of the occasion.

M.o.W POSTCARDS

At last I have seen some of Sir David Eccles' new postcards. One of them is reproduced on this page. You will, I think, agree that it is very pretty. This particular one was taken by the M.o.W. It is from a set of five of the Royal Naval College, Greenwich. There are also five views of the Tower and five views or floodlighted buildings. All those that I have seen are first-class and, while I welcome them individually, I wish that the Ministry would make less fuss about issuing them and get on with the job faster. The postcard season is well advanced and the committee set up in May last year has so far only produced 22 pictures. By the amount of publicity that has accompanied them one would think that twenty-two thousand was in fact the figure.

ALUMINIUM FOIL

My picture shows a stand at the Swiss National Agricultural Exhibition. It was erected by Aluminiumwerke AG Rorschach and consists of an aluminium mast supporting a circular canopy of aluminium foil laminated with cotton tissue. This material is said to be waterproof and almost untearable.

"NEWS CHRONICLE" HOUSES

If the recent *News-Chronicle* House competitions have not produced anything as revolutionary as their pre-war schools competition did, it has at least focused attention on the design possibilities and shortcomings of the thousand-square-foot house. Mr. Howard Robertson hit the nail on the head when he opened the exhibition at the Building Centre last week by saying that architects in the competition had been held too tightly by the conditions. For example dual-purpose bedrooms were required and this prevented anyone from designing minimum sleeping spaces to provide more living accommodation.

A VALUABLE HANDBOOK

The Gas Council's Coke Burning Appliances Handbook has now reached its fourth edition. It was launched at a reception held last week at the Building Centre when Col. Sir Harold Smith, Chairman of the Gas Council, and Mr. Shelton, Chairman of the British Ironfounders Association spoke about it. Sir Harold Smith made a plea for the burning of more coke on domestic hearths and pointed out how much cheaper it was. Mr. Shelton, while agreeing with Sir Harold on the desirability of such a thing said that at present there was not enough coke to go round and 30,000,000 tons of bituminous coal had still to be burned in domestic appliances each year. Manufacturers therefore still had to consider this fuel in the design of their appliances. Many of the appliances described in the handbook were on show, almost all in the once fashionable pale buff enamel so beloved of manufacturers.

A NEW TRADE ASSOCIATION

We may expect to hear of the correct uses of fibre board in building when the newly formed Fibre Building Board Development Organization gets going. Its Technical

An elliptical roof of aluminium foil laminated to cotton-tissue is suspended from a 20m. aluminium "Panzermast" to cover a stand exhibiting household foil at the Swiss National Agricultural Exhibition at St. Gall. A recent development by Aluminiumwerke A. G. Rorschach, the foil lamination is water-proof and almost untearable.

Director is an old friend, Mr. Basil Marriott, who has had considerable experience of technical public relations work in the building and other industries. He is one of those people who, with springy step and slim outline, seem to have perpetual youth both in their physical make-up and their outlook. While I grow fat and my clothes fail to fit, Marriott looks just as he did ten years ago. There's a crack somewhere there about comparative toughness of fibres but I will let it pass. We shall look forward to hearing from this new organization and may all its information sheets be to British Standard size!

SPITHEAD

Knowing a little more of the Military than the Naval side of Her Majesty's Forces, I did nothing about the Spithead Review, but the Editor sent a moderately nautical spy, who tells me that the Admiralty's drill worked out pretty well, with most people delivered at the right place at about the right time. He was a bit astonished, though, at the odd little teak and glass sentry box for the Queen and the Duke on the foredeck of *Surprise*, saying it looked rather like a small piece sawn off a deckhouse from the *Victoria and Albert*. I daresay that's what it really was, and from the photographs I think the roof might at least have been extended a bit to join up with the ship's superstructure. Other things which struck him were that aircraft carriers look odd enough without adding a one-sided grandstand full of M.P.s, neither very decorative, and that the three liners reserved for Government guests seemed almost empty, or perhaps the visitors were bored by the time they got to the western end of the lines, where the *A. & B.N.* spy was. Since this column hasn't said anything about British Railways for some months, it's perhaps worth recording that, although there were lots of extra trains, there were *no* sandwiches at the Portsmouth Dockyard buffet after 8 p.m.

ABNER

NEWS OF THE WEEK

Architects' Benevolent Society

A special general meeting of the subscribers and donors will be held at 66, Portland Place, W.1, at 11.30 on July 7, when the following resolution will be proposed:—

"That the following new Byelaws be made and established:—

Add a new paragraph (c) to Byelaw 1:—

'(C) The Society may itself either directly or by the constitution under special trusts of a subsidiary charity, provide and maintain homes, hostels and other living accommodation for persons whom it is the object of the Society to help.'

Insert a new Byelaw 41A:—

'The Council may, if it thinks fit, approve the constitution of a subsidiary charity for the provision, maintenance and administration of homes, hostels and other living accommodation for persons whom it is the object of the Society to help; and the Council may, if it thinks fit, direct the employment of any part of the funds, investments or income of the Society in the endowment, maintenance and support of such a subsidiary charity and Byelaws 42-45 (inclusive) shall operate and have effect subject to any exercise by the Council of the discretionary power conferred by this Byelaw.'"

Rural Industries Bureau

Viscount Hampden, who has been Chairman of the Trustees of the Rural Development Commissioners for the Industries Bureau since 1932, has retired. The new Chairman is Sir Basil Mayhew who has been a Trustee since the Bureau was founded in 1921. Two new Trustees have been appointed, Mr. Tom Williams, Minister of Agriculture from 1945 to 1951, and the Earl of Listowel, Joint Parliamentary Secretary to the Ministry of Agriculture from 1950 to 1951. The other Trustees are Mr. A. T. A. Dobson, Lord Cranworth, Mr. J. R. Griffin, and the Earl of Onslow. The Trustees administer the Treasury grant recommended by the Bureau's work of developing rural industries in England and Wales.

Housing Progress Report—April

The number of permanent houses completed in Great Britain during April was 23,262 compared with 17,401 in April, 1952.

In the first four months of 1953, 92,693 permanent houses were completed compared with 71,010 in the same period of 1952.

Private Building Licences

Sir Ian Fraser asked the Minister of Housing and Local Government whether he could raise the limit of 1,000 sq ft over which special licences had to be granted for those wishing to build houses. Mr. Macmillan said that the present arrangements only began on January 1, and it would be wise, he thought, to see how they worked out before deciding whether any change was needed. Sir Ian Fraser suggested that any modest increase that might be possible would be a good general contribution to the well-being of all who wanted houses. Mr. Macmillan agreed, but expressed confidence that local authorities would operate the scheme in a sensible way. For instance, in the first quarter of this year 65 per cent of the licences issued were for houses up to 1,000 sq ft, and 35 per cent for houses between 1,000 and 1,500 sq ft

Council of Europe H.Q.

At a recent meeting of the fourteen Ministers for Foreign Affairs of the Council of Europe at Strasbourg it was decided to enlarge the premises of the Council at Strasbourg by adding a seven-storey building to the existing House of Europe. Building firms from all Member States will be allowed to submit tenders.

Mr. J. O'Gorman has been elected President of the Architectural Association of Ireland. Mr. S. Maskell is Vice-President and the new Honorary Secretaries are Mr. W. M. Reidy and M. Halton. Mr. L. O'Neill is Hon. Treasurer.

CHANGE OF NAME

Mr. Leslie Graham - Thomson, R.S.A., F.R.I.B.A., will be known in future as Mr. Leslie Graham MacDougall. On Mrs. Graham-Thomson's succession to the Chiefship of the Clan MacDougall, she will in future be known as Mrs. MacDougall of MacDougall, and Mr. Graham-Thomson assumes the name of MacDougall.

EXHIBITIONS

The R.I.B.A. "Home and Surroundings" Travelling Exhibition will be shown at Shrewsbury Technical College from July 14-25, and at Guildford House, 10A, High Street, Guildford, from July 15-30.

CORRECTIONS

What can possibly be said when an architectural journal prints Sir *Edward* Lutyens, as we did last week? Only that the blind spot that all proof readers know and dread is particularly large where Edwin and Edward are in the copy. We offer our humble apologies to Messrs. Country Life, Ltd., for this slip.

On page 723, Post-war Trends of Occupation in the West End, the caption should have the words "grey arrow" and "black arrow" transposed.

On page 686 of the ARCHITECT AND BUILDING NEWS, issue June 11, the name of the general contractor for Elaine Avenue School, Rochester, was given as Kent and Sussex Contractors, Ltd. This firm are now known as Rush & Tompkins, Ltd.

CORRESPONDENCE

R.I.B.A. Conference

To The Editor of A. & B.N.

Sir,—After question-time in the Leas Cliff Hall, Folkestone, I was approached by several Architects who asked me for copies of various documents regarding "Collaboration between Private and Official Architects." I made a note of their names and addresses and arranged to send the documents to them. I attached the list of names to the other papers which I had with me and which were lying on a table. However, when, a little later on, I went to pick them up, they were not to be found and subsequent enquiries have failed to locate them.

If, therefore, those Architects who gave me their names will now write to me direct, I shall be happy to send them the documents they require.

I am, etc.,
S. H. LOWETH,
County Architect,
Kent.

To The Editor of A. & B.N.

Sir,—It is a little surprising to read in the *A. & B. News* of June 18 the criticism by Alderman Witts of the papers delivered at the recent Conference. The suggestion that Mr. Aslin, a Vice-President of the R.I.B.A., should err in a matter of architectural history is so startling that I feel called upon to rally to his defence.

Of course, Mr. Aslin is correct in saying that there were "architects, known and unknown, since the days of Egypt, Greece and through the Roman Empire." Alderman Witts, however, chooses to "inform him that ALL architects in these eras are unknown for the simple reason THAT THERE WERE NONE." He then tells our Vice-President that "if he were to study his history again he would learn that it was not until the Italian Renaissance . . . that architects were 'invented.'"

This seems to be an extraordinary invention on the part of Alderman Witts. In fact it is, I suspect, a Renaissance invention. It is as fallacious as the idea that Gothic architecture was invented by the Goths. Surely Alderman Witts must know that the names of several leading Egyptian architects are recorded in the tombs of Thebes, where they are buried (Engelbach, *The Problem of the Obelisks*, 92-112). Has Alderman Witts never heard of Inini and Dhutij? And what of Callicrates and Ictinus? Alderman Witts should refer to Plutarch's *Life of Pericles*, xiii, for more details. In Roman times there was, of course, Apollodorus, of Damascus, who planned the Forum of Trajan and designed the Basilica and Column of Trajan, and planned the statue for the moon—*aliud tale Apollodoro architecto auctore facere Lunae molitus est*—Spartianus XIX, 10-13. Were not Decrianus and Vitruvius architects? For the Middle Ages, the names of the architects are so numerous that I can only refer Alderman Witts to Saltzmann.

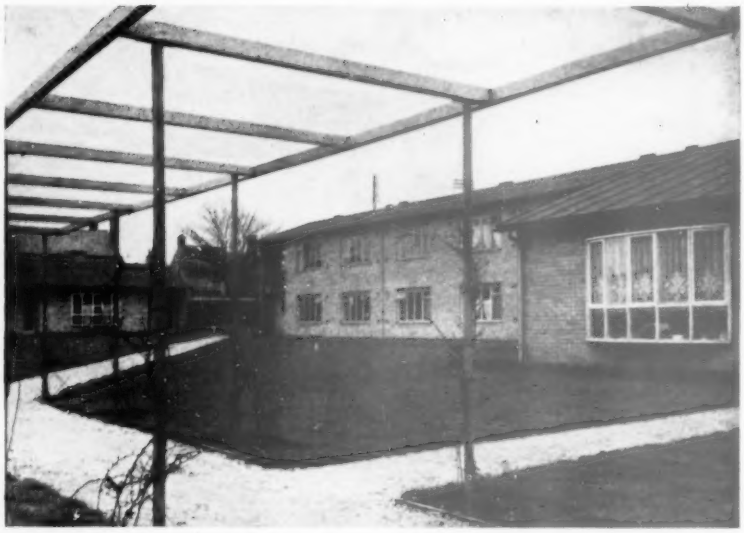
I feel, Sir, that I can only conclude with the quotation from Sir Winston Churchill given by Alderman Witts: ". . . . It's only by complete knowledge of the past that one can value the present and decide for the future. . . . "

I am, etc.,
CECIL STEWART.

To The Editor of A. & B.N.

Sir,—The R.I.B.A. report on the discussion at the British Architects' Conference on June 12, proved interesting reading. It was obvious from the context published that the profession had emphatically let their hair down for once. Reading between the lines was an amusing and absorbing speculation.

However, for those of us who were not fortunate enough to manage to attend the Conference—and those are the vast majority—I feel that it is a great pity that the R.I.B.A. did not think fit to publish a verbatim report with speakers names revealed. While I can perceive the sundry reasons for excluding the Press from the discussion, I cannot appreciate the suppression of



1953 HOUSING MEDAL AWARDS

The two schemes illustrated here complete the list of urban and rural housing estates awarded medals by M.O.H. & L.G. Top picture—Midland Region : Coventry City Council. Wellington Gardens, Spon End. Architects : Donald E. E. Gibson, C.B.E., A.R.I.B.A., M.T.P.I. Below—Southern Region : Abingdon Borough Council, Thames Street, Abingdon. Architect : F. Russell Cox, F.R.I.B.A.

the full story from fellow architects in the limited field of the professional Press.

The annual battle of opinion at the Conference by a fair section of the most energetic architects in the country is an informative conflict which deserves tasting to the last particle. It is also of particular value to those of us in the farther removed provinces, who are inconveniently situated for easy access to R.I.B.A. headquarters.

I am, etc.,
W. HOME.

Cricket

The annual match between the Vitruvians (the architectural and building Press) and the National Federation of Building Trades Employers was played at Richmond Cricket Club's ground on June 19, and left drawn. Scores:—

National Federation

J. B. Riley, b. Mudie	1
F. J. Munnion, b. Boyd	10
P. H. P. Lovell, c. Tatham, b. Mudie	18
A. E. Booth, b. Mudie	0
B. W. Gregory, not out	131
W. D. Bryant, not out	44
Extras	13
Total (for 4 wickets)	217

V. Leader, A. R. Carter, V. R. Blake, C. P. Kidman, J. A. Bird did not bat.

Vitruvians

J. Kennedy Hawkes, c. Booth, b. Bird	3
R. Mudie, b. Riley	17
A. Boyd, run out	4
C. A. R. Norton, b. Bird	21
Raglan Squire, c. Blake, b. Gregory	3
I. M. Leslie, not out	2
E. Chamberlain, not out	8
Extras	5
Total (for 5 wickets)	63

F. H. C. Tatham, W. A. K. Faldo, A. Watts, R. Dowson did not bat.

Building Industry Indentured Students

How many indentured students are there in the building industry in London? At the moment nobody knows, and the L.M.B.A. wants to find out.

In recent years more and more importance has been attached to the training of young men for technical, administrative and managerial posts in the building industry, and increasing numbers of L.M.B.A. members are training young men under various forms of indenture.

At the moment information regarding the numbers and distribution of these pupils is very limited, and it has become clear that a "register" of articled and indentured students would be of considerable value.

The L.M.B.A. is therefore circularizing its members, asking all who have any articled students in their employment to complete and return a form showing their numbers.

Public Schoolboys and the Building Industry

Following the highly successful visits paid at the invitation of the London Master Builders' Association by boys from Harrow School to building sites in London, the L.M.B.A. has arranged for a similar visit for boys from Felsted School, Essex, next month. Some twenty boys will take part in the visit, which will probably be to one of the many housing schemes in South London.

The suggestion for the visit came from the boys themselves.

The F.B.B.D.O.

The inaugural luncheon of a new organization, the Fibre Building Board Development Organization was held on June 17 in the Apothecarie's Hall. Mr. E. P. Lawrence took the chair and explained the objects of the F.B.B.D.O. Among those present were Mr. R. J. Schaffer, *Building Research Station;* Mr. A. E. Hickinbotham, *Assistant Secretary—Housing Division, Ministry of Housing & Local Government;* Mr. A. J. Filer, *Director General of Building Materials, Ministry of Works;* Mr. H. A. Harris, *Solicitor, Warmingtons;* Mr. T. M. Swain, *Chairman, Wallboard Commodity Committee, Building Industry Distributors;* Mr. C. W. Anderson, *President, W.I.D.M.A.;* Mr. L. H. Storey, *Chairman, Importers Section, W.I.D.M.A.;* Mr. D. K. H. Lindsey, *Chairman, Merchants Section, W.I.D.M.A.;* Mr. H. F. Payne, Secretary, F.B.B.D.O.; Mr. L. G. Perryman, *Ministry of Materials;* Mr. A. S. Gilbert, *Ministry of Materials;* Mr. Niels Odegaard *(Norway);* Mr. J. L. P. Maigret *(Belgium);* Mr. E. Kuylenstierna *(Sweden);* Mr. G. Lofgren *(Sweden);* Mr. C. J. P. Price, *Treetex, Ltd.;* Mr. C. S. Goyder, and Mr. F. Hopkins, *Tentest Fibre Board Co., Ltd.;* Mr. P. A. Sargent, *a Vice-President of Canadian International Paper Co.;* Mr. A. A. Wedderspoon, *The Merchant Trading Co., Ltd.;* Mr. C. Neville, *Graham & Wylie, Ltd.;* Mr. E. P. Lawrence, *Scharin Products,* Ltd.; Mr. D. A. Cable, and Mr. A. W. Shaffery, *Insulite Products Corporation, Ltd.;* Mr. H. Rixon, Mr. G. H. Peters, Mr. C. Ford, all of *Sundeala Board Co., Ltd.;* Mr. G. C. Snyman, Mr. T. B. Dodson, Mr. W. S. Brydon, all of *Celotex, Ltd.;* Mr. I. W. Goldberg, *Wood Fibre Wallboard, Co.;* Mr. C. G. Cullen, and Mr. F. R. Morley, *Bowaters Building Boards, Ltd.;* Mr. P. C. Galloway, and Mr. F. N. Bentley, *Masonite, Ltd.;* Mr. K. E. Neale, and Mr. A. A. Neale, *Bech Neale & Co., Ltd.;* Mr. Eugen Blioch, *Eugen Blioch & Co., Ltd.;* Mr. E. R. T. Foad, and Mr. V. C. Randall, *Wm. Brandts (Wallply), Ltd.;* Mr. J. P. Blackman, and Mr. R. C. Elliot, *Duncan Ewing & Co.;* Mr. P. A. Robinson, *Flatau Dick & Co.;* Mr. H. A. Johannessen *(Norway);* Mr. R. V. Cooper, *Foy Morgan & Co., Ltd.;* Director V. Snäll, and Ingenior Kaila, *(Finland);* Mr. A. N. Galliver, Mr. Norman Wright, Mr. D. E. Wright, all of *Leary's Fibreboards, Ltd.;* Mr. H. Nordenhok, *(Sweden);* Mr. N. D. van Goethem, *(Holland);* Mr. T. J. Kilshaw, and Mr. G. Sherman, *Munro, Brice & Co., Ltd.;* Mr. V. Tham, and Mr. J. L. Hamnett, *Martin Olsson & Sons, Ltd.;* Mr. J. G. G. Stone, *Pharaohs (Distributors), Ltd.;* Mr. Einar B. Lyche; Mr. E. F. Creffield, and Mr. Hj. Grenvik, *Plywood & Timber Products Agencies, Ltd.;* Mr. W. F. Schlesinger, and Mr. J. C. Milner, *W. F. Schlesinger & Co., Ltd.;* Mr. F. P. Pearson, *Thomas Simson & Co., Ltd.;* Mr. J. M. Glover, and Mr. A. E. Evensen, *Spencer Lock & Co., Ltd.;* Mr. Basil Marriott has been appointed Technical Director of the F.B.B.D.O., and Messrs. F. J. Lyons and P. J. Baker will be responsible for Public Relations.

LAW REPORT

IN the Queen's Bench Division on Thursday the Lord Chief Justice (Lord Goddard) upheld an arbitration award of £3,895 in favour of Bromley Corporation in their counter-claim to a claim by a firm of architects arising out of the abandonment of a £106,426 building scheme at Bromley.

Messrs. Kenneth Dalgliesh and Roger Kendall Pullen, architects of Fitzhardinge-street, S.W., were appointed as architects in May, 1947, to prepare and carry out a scheme for the provision of house accommodation on Blyth-road site, Bromley. The scheme was abandoned by the Corporation in May, 1951, and the architects claimed fees and expenses for work they had done.

The Corporation counter-claimed for payments they had made alleging negligence and breach of contract by the architects, who denied the allegations.

The dispute was heard by an arbitrator who found that the architects were negligent in their examination of the land and in not preparing proper plans. He dismissed their claim and awarded the Corporation £3,895.

It was now contended for the architects that there was no evidence before the arbitrator to justify his findings and that the abandonment of the scheme had nothing to do with anything the architects had done.

The Lord Chief Justice (Lord Goddard) giving judgment said that, if the facts as found by the arbitrator were correct, they showed negligence by the architects. The arbitrator had found that the plans prepared by the architects were useless; and there had been no proper examination of the land and that the whole scheme from beginning to end was wrong because the site for the building had such a steep slope that without extra work and expense, the scheme would be uneconomical. His lordship decided there was evidence on the facts to support the allegations and that damages arose from negligence by the architects.

His lordship accordingly upheld the award of £3,895 in favour of the Corporation, with costs.

Building Research Report

The Second Report of the Advisory Council (to the Ministry of Works) on Building Research and Development now published by H.M. Stationery Office, price 1/3, covers the Council's activities from 1949 to 1952.

The Advisory Council on Building Research and Development was first set up by the Minister of Works in 1947 and was reconstituted in 1950. It keeps under review the whole field of building research and advises the Minister on methods of making known the results of research and securing their application. The Council includes representatives of both employers and operatives in the building and civil engineering industries and of the professions associated with those industries, and others whose special knowledge or experience is useful to its work.

In order to discharge its responsibilities the Council surveys each year the entire known programme of building research in the United Kingdom. The report describes the preparation of this programme and how the views of bodies representative of the industry and professions are obtained on it, and gives the Council's main comments and recommendations as a result of its scrutiny of the programmes for 1951-52 and 1952-53.

A list of the titles in the principal series of Government publications on building, details of lectures arranged by the Ministry of Works during 1951-52, and a list of Technical Information Officers of the Ministry of Works, are given in the appendices to the Report.

Exhibition of Architectural Photography

The Royal Institute of British Architects and The Royal Photographic Society are collaborating in the preparation of an exhibition of architectural photographs of contemporary and historical subjects. This exhibition is one of a series which has been planned by The Royal Photographic Society to celebrate the centenary of the foundation of the Society.

The exhibition is to be shown at the R.I.B.A. headquarters, 66, Portland Place, W.1, from October 9th-29th and entries are invited without entrance fee from both professional and amateur photographers under the following heads:—

Section 1. *Historical architectural subjects.* (a) Monochrome prints or transparencies. (b) Colour prints or transparencies.

Section 2. *Contemporary architectural subjects.* (a) Monochrome prints or transparencies. (b) Colour prints or transparencies.

One of the objects of the exhibition is to assist architects in different parts of the country to obtain photographs of good quality. Photographs of contemporary subjects will be particularly welcome.

The following architects and photographers will form the Selection Committee:—

R.I.B.A. Representatives—Mr. G. S. Inglefield, A.R.I.B.A., Mr. Howard V. Lobb, C.B.E., F.R.I.B.A., Mr. Norman Westwood, F.R.I.B.A.

Royal Photographic Society Representatives—Mr. K. H. Gaseltine, F.R.P.S., Miss Margaret Harker, F.R.P.S., Mr. Sydney Newbery, F.R.P.S.

The closing date for entries is *August* 24, 1953, and those intending to submit material are asked to write to the Secretary, The Royal Photographic Society, 16, Princes Gate, London, S.W.7, who will supply entry forms and further particulars.

L.M.B.A.G.S. v. R.I.B.A.G.S.

The annual match between the respective Golfing Societies of the Royal Institute of British Architects and the London Master Builders Association was recently played at what is now its spiritual home, West Hill. As there were 18 competitors on each side, play was of necessity by foursomes in the morning, though four balls were permitted in the afternoon. All matches were under handicap.

The course, as usual, was in perfect condition, but previous rain and a succession of showers on the day made it play very long.

The morning play brought the Architects a decided advantage. In the leading game L. S. Foster (1) and C. Ibbetson (5) struck a firm blow for the builders by a comfortable victory over J. Grey (9) and W. W. Fisk (14) by 6 and 5, and the captain, G. A. Hill (18) nobly assisted his partner, S. Marshall Andrew (8) to beat E. N. Bomer (15) and J. Emberton (18) by 6 and 4. Balance, however, was restored by C. A. Townsend (15) and R. D. Scott (16) who trounced P. H. Bates (8) and L. Dobbs (11) by 4 and 3, and by H. St. John Harrison (13) and W. R. F. Fisher (10) who inflicted an even worse defeat on F. P. Leadsom (5) and D. F. Cox (7) by 5 and 4. The issue, however, was not long in doubt, and the Architects led comfortably at luncheon by 6 matches to 3.

Matches were rearranged in the afternoon and the builders quickly began to fight back. Foster and Ibbetson were successful by 1 up against A. Briggs (13) and L. P. Rees (5) and F. R. Clemens (4) and L. F. Chamberlain (12) won by 2 and 1 against Grey and Fisk. Townsend and Scott were allowed by special dispensation to continue the battle with Bates and Dobbs in the afternoon, and this time romped home by 6 and 5.

The tide, however, was running in the builders' favour, and the afternoon went to them by 5 matches to 3. However, this left the Architects winners on the day by 9 matches to 8—a very close and exciting finish to a fixture which gains in interest and popularity with each successive year.

Brazilian Architecture Essay Prize, 1953

The Anglo-Brazilian Society offer a prize of £50 in cash for an essay on architecture in Brazil based on the Exhibition of Contemporary Brazilian Architecture, to be held at The Building Centre, London, W.C.1, July 8-31, 1953.

The Competition will be confined to British subjects who are between the ages of 18 and 35 during the calendar year of 1953.

The Essay (in English) should not be less than 2,000 words, but should not exceed 5,000 words. It will be judged by a Jury appointed by the Anglo-Brazilian Society and the Royal Institute of British Architects jointly.

The Jury will consist of the following:—(a) *Nominated by the Anglo-Brazilian Society:* Sir Arthur Evans (Chairman); Sir Alfred Bossom, Bt., F.R.I.B.A., J.P., M.P.; Lady Evans; A. Representative of the Brazilian Embassy. (b) *Nominated by the R.I.B.A.:* Mr. David du R. Aberdeen, F.R.I.B.A.; Mr. Anthony M. Chitty, F.R.I.B.A.

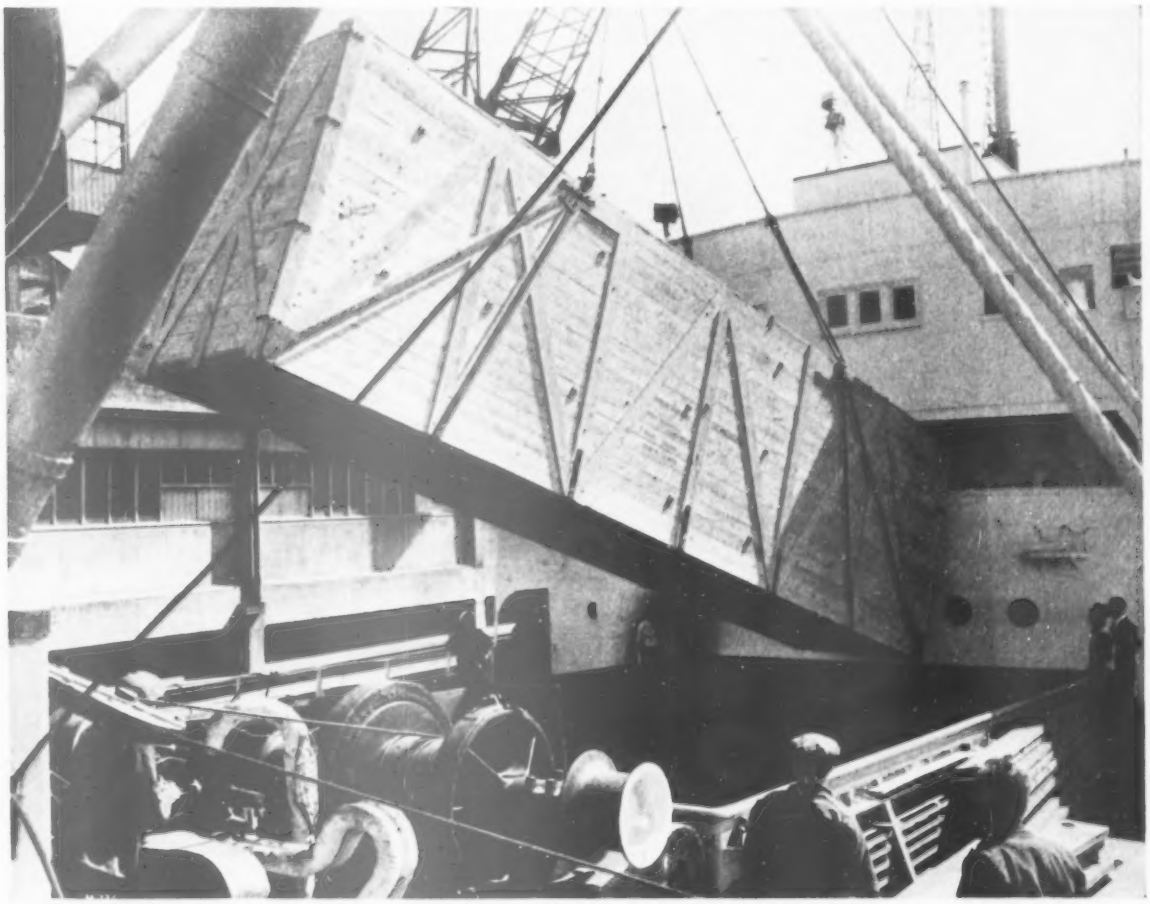
The subject set is "Contemporary Brazilian Architecture," and the Essay may deal with the development of æsthetic trends in the architecture of all types of residential and industrial buildings in modern Brazil. As far as possible, the Essay should be related to the material to be shown in the Exhibition of Contemporary Brazilian Architecture under the auspices of the Anglo-Brazilian Society at The Building Centre, London, W.C.1, in July, 1953. Competitors are expected to make a contribution to architectural thought or scholarship. The Jury will also look for a high standard in the form, style and presentation of the Essay.

Each Essay must be typewritten on one side only of foolscap paper and may be accompanied by sketches or other illustrations by the author's own hand, but *not* photographs, cuttings or other reproductions. Subsequent references may, however, be made to photographs and other items in the above-mentioned Exhibition, and which might be used to provide supplementary illustration for the Essay in the event of its being published. Any illustrations should be on paper, cut or folded to the same size (foolscap), as the Essay and bound up with it. The winning Essay will become the property of the Anglo-Brazilian Society.

A motto of one word is to be chosen by the competitor and marked clearly on the right-hand bottom corner of the *back* cover of the Essay. A letter stating the competitor's name and address, and a declaration that the Essay is his own unaided work, without the collaboration or assistance of anyone, is to be enclosed in a sealed envelope, having on the outside the name of the prize competed for and having the same motto as that attached to the work submitted. The Essay and sealed envelope must be enclosed in another envelope and sent by registered post direct to the Administrative Secretary of the Anglo-Brazilian Society, 31, Palace Street, London, S.W.1., so that it may reach him on or before October 31, 1953.

BRITISH BUILDING PRODUCTS FOR THE WORLD

THE manufacturers who supply the needs of the Building Industry in Britain also export their products all over the world. At the producers' end, overseas buyers' requirements need to be studied; it is equally desirable that the products for export should have the widest publicity in the countries of potential customers. Overseas visitors to this year's British Industries Fair numbered 12,627, *which is an indication of the great interest shown in British goods. Another opportunity to inspect the products of the building industry will be given at the Building Exhibition to be held at Olympia, London, from November* 18–*December* 2, 1953. *In the meantime we give in the following pages a sample, and it is no more, of the kind of building equipment produced in this country, in the hope that it will convey something of the quality and variety of British products in this vast field. Fuller details of what is available in each branch and section, and names of manufacturers other than those mentioned, will gladly be given on application to this journal.*



Loading crate of "Bristol" Buildings for Australia

PREFABRICATED BUILDINGS FOR EXPORT

Speech by SIR DAVID ECCLES, K.C.V.O., M.P., *Minister of Works, at the B.I.F.*, 1953

THE aim of British industry has always been to anticipate and satisfy the wants of our overseas customers. Their requirements are continually changing. In the old days they used to buy from us many things which are out of fashion now. But in their place we sell nylons and radio sets. I am sure, however, that since the war one of the world's most urgent demands has been for new buildings of all kinds.

Here in Britain we know a great deal about our generation's crying need for more and better homes. My colleague, Mr. Macmillan, the Minister of Housing, and I are on the way to conquer this shortage, and there are very few people in this country who do not await the monthly housing returns with something of the interest we feel for a Test Match score.

But do not let us forget that the rest of the world is also desperately short of houses; especially the new countries which are able to grow the kind of food we need

Sir David Eccles, K.C.V.O., M.P.

and would be glad to take payment in prefabricated homes for their people.

This exhibition of houses for export shows what Britain can do to meet the international demand for a good home, with a good kitchen and good plumbing, at a reasonable price and all ready for the family to step into a few months after the order is placed. The furniture of high quality and the attractive decorations are part and parcel of the completed building and add very much to its appeal.

You will see if you look round that we export many other buildings beside houses. Here are examples of schools and hospitals with complete equipment which are just what are needed in the thrusting growing territories of Australia, Africa, Middle East and America. It looks to me as if this type of equipped building has a very great future in international trade.

Britain has gone ahead of all other countries in the export of prefabricated buildings. In 1952 we passed our Continental competitors and Britain is now the world's leading exporter of prefabricated buildings. Here are the figures to show you how our earnings in this new international market have increased since the export of houses began: in 1949 we earned £80,000; in 1950 £2¾ million; in 1951 £5½ million; in 1952 £7 million; and the curve is still rising in 1953. These records, made year after year, give you an idea of the strength of the market; how it is expanding and what fine prospects lie ahead. Incidentally, in 1952 we sent buildings to over fifty different countries.

We have achieved this success because our manufacturers study the local conditions of their customers: the climate—is it cold or hot? Does it snow in winter or burn in summer, or maybe it does both? And are there insects to contend with? Above all, what sort of living conditions are traditional in the country?

Our manufacturers are sure that their young industry has got through its teething troubles and now has the experience to build the right kind of house from the Arctic to the Equator.

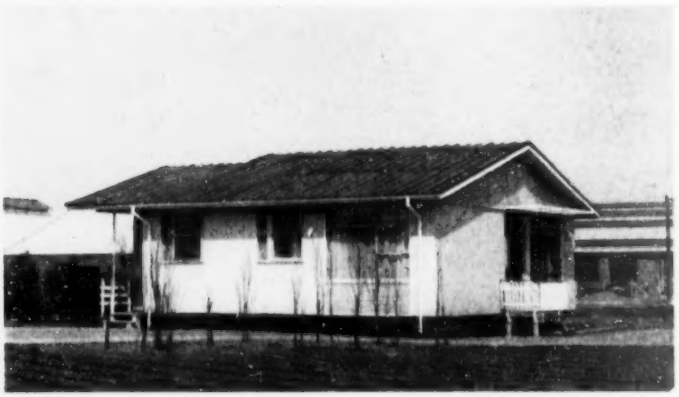
Indeed, we say to the world and his wife:—

"Tell us about the house of your dreams. Describe it to us from the children's bedroom to the boiler-plant and the ash-can. We will make it for you here in a British factory. We will package it and ship it to you across the sea and help you to erect it on the site in two or three days from the time it arrives."

We say the same to any central or state government, town council or charitable trust which may be thinking of putting up some building like a Post Office, Telephone Exchange, School or Hospital. "Let us know your requirements and we will carry them out."

That is our ambition and this section of the British Industries Fair has been arranged to show the world Britain is ready to build and export any type of house and structure which they want to see erected in their own country.

Arcon Bungalow



"ARCON" BUILDINGS

THE Arcon system of construction has been used with success in the design of dormitory blocks and offices for Kuwait. The bungalow illustrated here makes use of the Arcon panel construction for the walls, which are faced externally with interlocking vertical boarding backed with paper. Internally, the walls are faced with hardboard, which is used for covering both faces of the Arcon panels forming the internal partitions. Windows are timber and doors are flush panel. The foundations are concrete stumps fitted with ant caps and carry timber joists. Manufacturers, Taylor Woodrow (Building Exports), Ltd., London.

"TRUSTEEL" BUILDINGS

THE Trusteel building system is suitable for homes, hospitals and schools. It makes use of a lightweight steel frame designed to speed up the erection of single and two-storey buildings. A 35-bed hospital for Australia is illustrated here. The hospital can be extended as required to accommodate a greater number of beds or other units of the hospital. The whole of the mechanical services and other work are prefabricated throughout. The hospital is one of several which have been specially developed for erection in country areas in the State of Victoria. Manufacturers: Trusteel Corporation (Overseas), Ltd., London.

Trusteel Hospital, Melbourne

Buildings for Export

Hospital in Reema Construction, New Delhi

REEMA BUILDINGS

THE illustration shows the Irwin Hospital block, New Delhi, India, constructed in the Reema system of building development by Reema Construction, Ltd., of London. The system uses local materials, and employs local labour and requires a minimum use of skilled craftsmen. The surface finishing colour is incorporated in the concrete panels during casting and curing.

"ALFRAME" BUILDINGS

THE Alframe bungalow, one of a number of developments by Structural & Mechanical Development Engineers, Ltd., of Slough, is constructed from a high-strength non-rusting aluminium framework, covered with aluminium sheeting with a special finish. This panel also provides an excellent surface for taking paint if required. The roof sheeting is left bright in order to reflect the heat of the sun. A wide verandah surrounds the bungalow on all sides, providing air space under cover. The lower half is sheeted with aluminium and lined with hardboard and the upper part is enclosed with mosquito netting. Fans and regulators are supplied in addition to other electrical services.

Church in Bristol Construction, Melbourne

"BRISTOL" BUILDINGS

THE "Bristol" system of unit construction in aluminium can be adapted to provide a large number of buildings. Many schools have been erected in the United Kingdom using the system, and in Australia hospitals are in course of construction complete in every way and accommodating up to 110 beds. Probably the first aluminium church to be built in the world, St Celia's Church, has been erected at Melbourne. The church is built entirely of Bristol aluminium components.

BUNGALOWS FOR NEW ZEALAND

HOUSES in timber have been erected in Australia and New Zealand produced by W. J. Simms, Sons, & Cooke, Ltd., who have an office in Auckland. In each case the construction was the "Precut" system referred to later in this section, with minor modifications to suit local practice. The houses were supplied complete with plumbing and electrical services. In the case of New Zealand a special set containing items for 10 houses instead of one was devised to save shipping space.

Buildings for Export

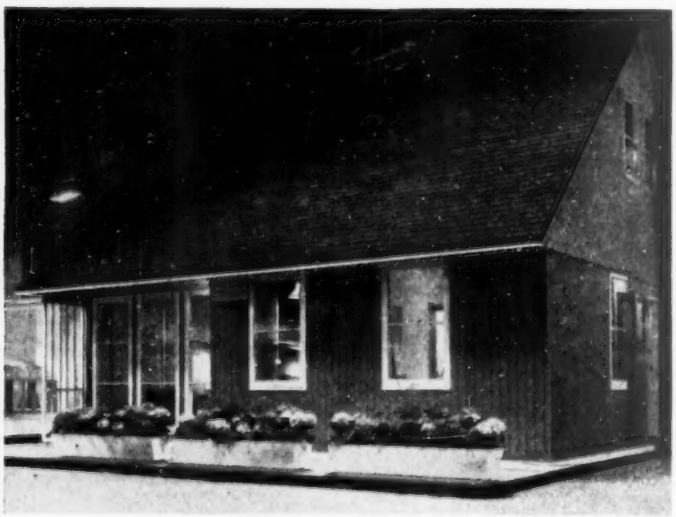
THE "SUPALITE" BUNGALOW

BUILDINGS constructed in Supalite construction include bungalows for oil companies in the Middle East, school buildings for Queensland, Australia, and bungalows for the Australian and Canadian markets. A two bedroom bungalow is illustrated here.

Supalite construction has been designed for mass production with the aim to make it simple and quick to erect and dismantle with unskilled labour and adaptable for use in tropic, arctic or temperate climates.

The framework for walls and roof truss is of light alloy units. The framework is bolted to a concrete raft and clad with timber-framed panels surfaced with asbestos on the outside and insulation or other approved board on the inside. Plain and window panels are 2ft wide ; door panels 4ft wide. Exterior wall panels are insulated with wood wool slabs, aluminium foil and a 1in. air space. A wide choice of suitable roofing materials is available.

The crated weight of a 42ft × 26ft bungalow is 17 tons which can be transported on three 6-ton trucks. Crating for air freight can be provided. Developed by Maycrete Ltd., London (world selling rights) in conjunction with G. H. Burgess & Co. Ltd., Manufacturers.

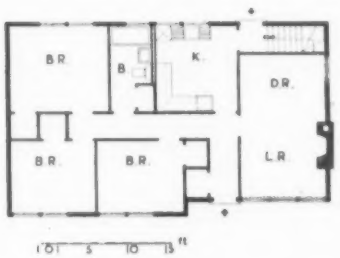


RILEY-NEWSUM CANADIAN HOUSE

RILEY-NEWSUM houses have been designed for Australia, the West Indies, Canada and the Middle East. Other buildings for overseas include barrack blocks and native houses. The Commonwealth Government of Australia placed the first contract for Riley-Newsum houses in June 1950, since when large contracts have been placed and shipments made overseas. The Company received their first dollar export order for British-made timber houses from the Canadian Government.

Plan and picture here illustrate the 1½ storey type of Canadian house which was on view at the British Industries Fair this year. The house was designed by Architects S. F. Biggs and D. J. Middlebrook. The ground floor walls are built in panels 3ft 4in × 8ft high insulated with glass wool and covered with plasterboard internally.

Native houses are simply planned. They are constructed with 3in × 3in softwood posts, asbestos and insulation board panels, and 2in Stramit roof covered with tropical roof felt. Manufacturers : H. Newsum, Sons & Co. Ltd., Lincoln.



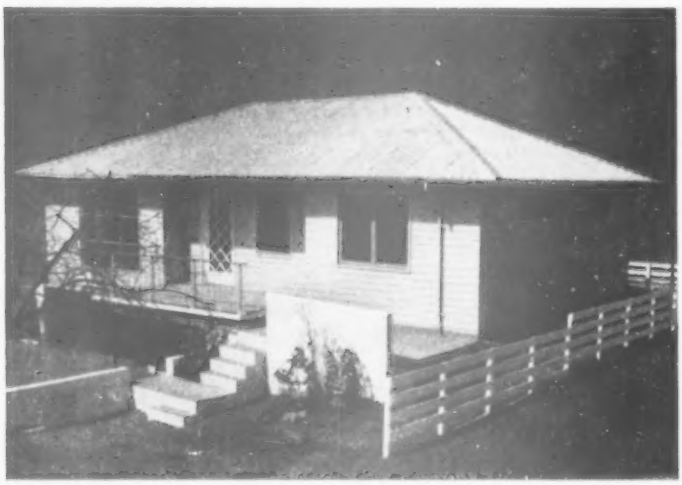
THE "SCOTIA" HOUSE

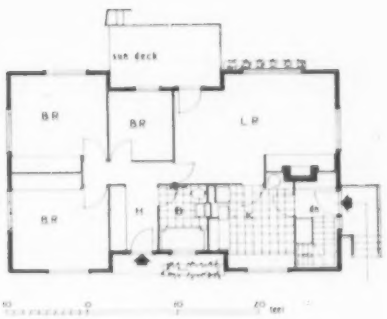
THE "Scotia" house manufactured by Cruden Houses Ltd., Musselburgh, Scotland, is but one example of the buildings which this company are prepared to prefabricate for export. Other buildings include farm buildings, schools, and other models of the house.

The construction of the house is all timber. Exterior walls are striated tongued and grooved vertical weather boarding with diagonal 1in timber sheathing, prefabricated into easily handled panels. The roof consists of prefabricated timber folding trusses upon which are laid sheathing sections covered with asphalt tiles. The interior finish is $\frac{3}{8}$in plaster board applied on site. Alternative cladding and roofing materials can be supplied.

The electrical installation is made up in prefabricated kits. Protection can be arranged against termites by pressure impregnation with Tanalith. Storm sashes, fly screening and double glazing can be provided, if required.

Erection may be over a normal basement containing a laundry tub and air heater, or a slab foundation can be used. There is ample room for a centrally placed floor heater.





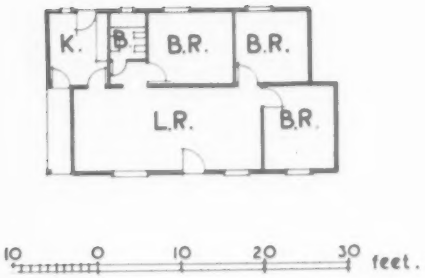
THE "PRECUT" HOUSE

THE "Precut" house is another all-timber house for which the sole distributors and patent licensees for the United Kingdom, British Commonwealth and Empire are R. Nerdrum Ltd., London, in conjunction with Messrs. Testit of Norway. The architect was Frederick Cubitt, F.R.I.B.A.

The external wall construction is of 6in × $2\frac{1}{2}$in interlocking tongued and grooved solid planking laid horizontally and reinforced with $\frac{1}{2}$in. diameter bolts running through the entire height of walling and anchored in the foundations. The exterior face of the walling is weathered and mastic strip is laid between each course of timber. The floor is supplied in prefabricated panels of tongued and grooved boarding fixed to timber floor joists. During transport, these floor panels act as crating for the other components of the house. The roof is of rafter construction with prefabricated lattice trusses, and the whole is bolted together. The standard roof covering is Rigidal aluminium sheeting fixed to timber purlins, which is claimed to be highly efficient, but other roofing materials may be used to meet local requirements.

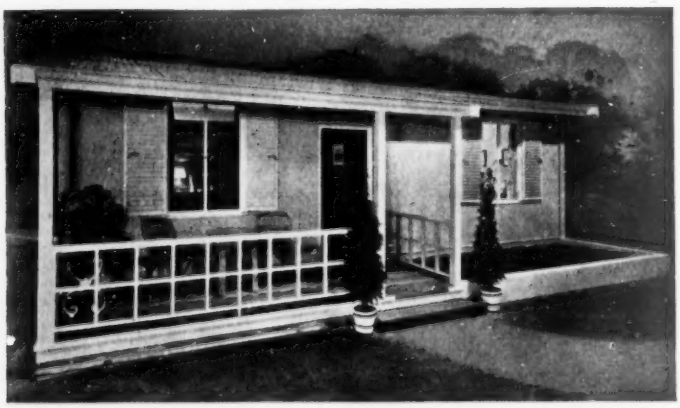
For insulation, the outer walls and ceiling are lined with 2in thick strawboard which is also used for non-load bearing partitions. Windows, doors, frames and architraves are supplied as a unit and windows are double glazed. All timbers are impregnated with chemical salts against rot and termites.

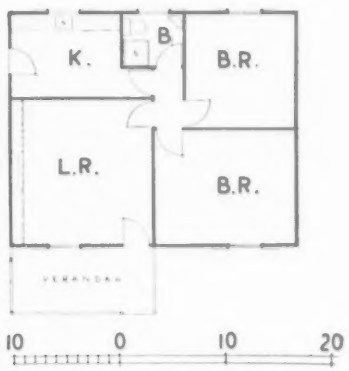
Buildings for Export



UNI-SECO BUNGALOW AT URUGUAY

THE "Seco" system is a dry method of construction adaptable for many types of building. Special requirements of customers can usually be catered for. Uni-Seco, Ltd., of London, the manufacturers, have recently prepared a scheme for bungalows in Uruguay a perspective sketch of which is illustrated here with a plan of one type of bungalow. The system offers advantages where a number of buildings rather than a single one are required, where the full benefits of factory built units can be reaped. The system makes use of steel or timber framing with Seco structural panels for walls and also for flat or low pitched roofs. The Seco panels consist of a wood wool and cement insulating core integrally sandwiched between asbestos cement sheets. The exterior wall finish may be suited to a variety of needs.





THE SCOTTWOOD "PACIFIC" HOUSE

THE Scottwood "Pacific" house is one of a number designed by the firm and is especially suitable for export to countries with hot or humid climates. An even temperature is maintained throughout the house by means of the thermal insulation properties of the walls. The type of construction makes use of laminates where possible. The Scottwood wall panels consist of resin bonded exterior-quality weather-proof plywood nailed and bonded in two skins to soft wood framing. The cavity between the two skins is filled with glass wool fibre, to give them their high thermal efficiency. Glass wool fibre is both fly-proof and vermin proof. It is claimed that the factory built superstructure, shell and roof structure, can be erected by a team of six men and one supervisor in eight hours.

The house illustrated here was on exhibition at the British Industries Fair this year. Single storey houses are also available with a flat roof of Scottwood sections bolted to the main structure. As an internal finish to the living room walls the plywood panels are waxed and polished. Consulting Architect: William M. Carter, A.R.I.B.A. Manufacturers: Scottwood Factory Built Permanent Homes, Ltd., London.

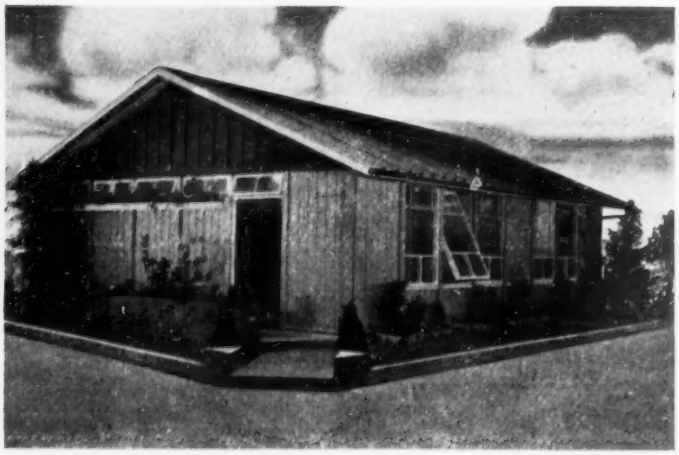
A "NEATA" DWELLING

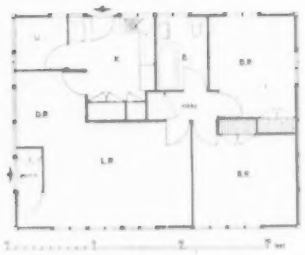
THIS dwelling is one of a range of cedarwood homes manufactured by Neata Products (Cheltenham), Ltd. which makes use of a system of construction designed in conjunction with L. W. Barnard and Partners, F/F.R.I.B.A., architects of Cheltenham and Cirencester. The system of construction makes use of completely prefabricated units in 2 foot modules together with prefabricated trusses. Cedar shingles are used for the roof covering. The prefabricated system provides a complete exterior shell, within which interior partitions and finishes may be executed by a contractor in any of the traditional or local forms. The company prepares a range of architectural designed unit-construction dwellings adaptable to meet the individual requirement of customers. Other buildings including sports pavilions, village halls and recreational rooms can also be provided.

THE MOBILE SECTIONAL BUNGALOW

MOBILE Accessories Co. (London) Ltd. manufacture a system of reinforced concrete panel construction which is suitable for many types of building. One type of bungalow is illustrated here. The " Mobile " buildings are designed so that they can be packed into small space-saving bundles of one ton measuring 40 cubic feet which may be easily shipped overseas. The standard panels measure 8ft x 4ft x 1in thick. The panels are constructed with a surrounding frame of angle iron shaped rectangularly and laid down to form a bed in which sheet " Asbestone " treated on the inside for decorative purposes, is placed. A screen of steel rods is then welded to the frame and a vertical damp course added to the Asbestone. Concrete is then poured into the frame and the whole is compressed in specially constructed moulds. Roof trusses are of steel. Windows are of steel framed construction. Roof covering may be either corrugated asbestos cement sheeting or Hendon purlin tiles. Doors are steel. Ceilings are either Essex board or hard board.

Buildings for Export





K-D HOME FOR AMERICA

A NUMBER of dwellings for overseas markets has been designed on the K-D modular system of construction. Among them are : three-bedroom homes for Australia and New Zealand ; two-bedroom air-conditioned homes for Kuwait and homes for Malaya. The type here illustrated is basically designed for America. It was erected at the British Industries Fair at Earls Court this year.

The homes are usually built on a concrete base raft. Perimeter walls are timber or steel framing clad externally with steel, timber or asbestos and internally with hardboard or plasterboard. The roof truss is of steel and the roof covering similar to the wall cladding or timber battens and local tiles. The kitchen is fitted with built-in cupboards and the fittings usually found in a contemporary home. Double glazing and fly screens may be included if desired.

Heating is by means of ducted hot air or a fireplace. In Summer, cooling is by ducted cold air from a suitable plant. Manufacturers : K-D Homes (London) Ltd., London.

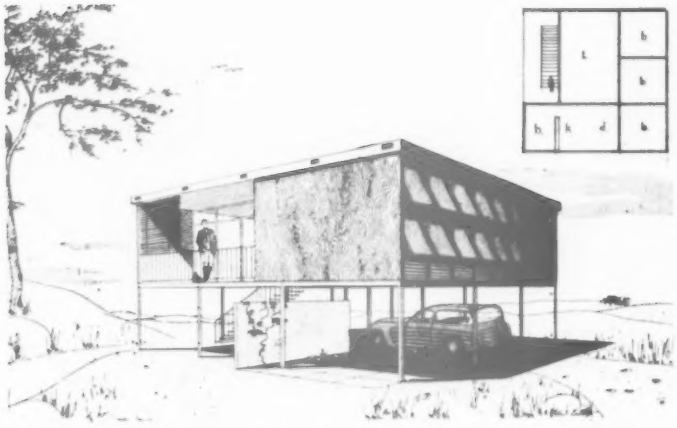
THE OVERSEER BUNGALOW

THE Ubique building system is flexible and a variety of buildings including houses, schools, churches and huts can be constructed using standard components.

The Overseer bungalow, a model and plan of which are illustrated here, is a new development for which enquiries have already been received from the Middle East.

The Overseer is light and packs small. It is crated for shipment. Gross weights and dimensions are given on application to the manufacturers as they vary according to type ; but as an approximate guide the Overseer bungalow weighs 9 tons and measures 1100 cu ft crated.

The frame consists of a series of portals linked at the ridge and eaves by spacer panels. The wall panels are of sandwich construction 2in thick, made of two skins of $\frac{1}{16}$in asbestos glued to a low density Dufaylite core. Windows are supplied in standard panels and are similar to the British E.J.M.A. pattern. The building has a concrete slab base. The permanent ventilators are fly proof and all opening windows and doors are fly proofed if required. All the timber in the houses is claimed to be made resistant to termite and fungus attack by tanalizing under pressure. Manufacturers : Booth & Co. (England) Ltd., London.



EXPORT BUNGALOW—PUNT SYSTEM

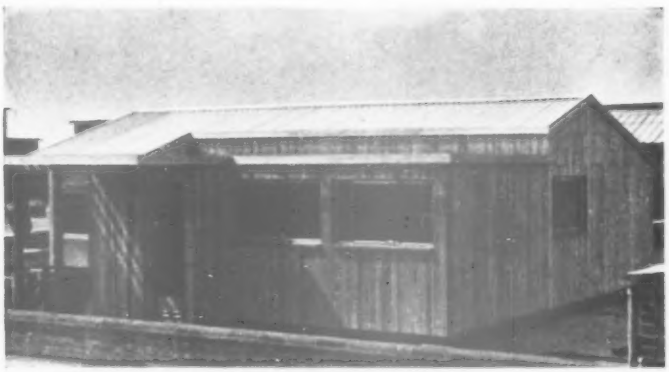
A NEW system of roof construction known as the "Punt" system has been designed by Ove Arup & Partners, Consulting Engineers, and is manufactured in London by C.D. Productions, Ltd. It was introduced last year for adoption in Hertfordshire County Council Schools. The system consists of a series of boxes or "punts" made in standard widths with plywood beams forming the sides, a plywood top, and a flush hardboard ceiling. The punts are placed on their supports at two module centres, leaving a space between adjacent punts. The space may be filled with standard width roofing or ceiling infiller units, which rest on ledges provided on the sides of the punts thereby making a flush roof and ceiling. Services may be concealed in the spaces between plywood top and hardboard ceiling. The punts are at present manufactured to fit a 40in module.

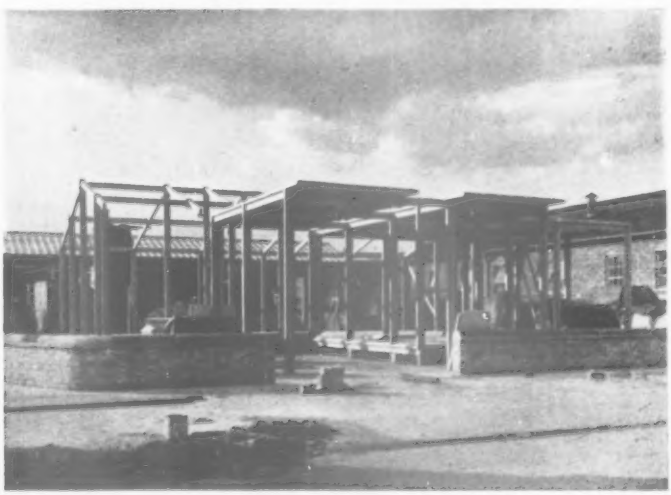
For export housing this system of roofing may be supported on panels over a suspended floor. The floor may be made in units each three modules square supported on columns or on supporting walls. The system has various uses, and its application to export houses is illustrated in the perspective sketch of a typical example.

* * *

Another interesting system of building equally suitable for export or use in this country, and for which Harrison and Seel were consulting architects, has been developed by A. Cameron, Ltd., of London. Mod-X, as the system is called, makes use of the "Meccano" principle of standardized components. The system is based upon a module of 40in, which is in turn broken down to a lesser module of 4in. All parts are devised to fit together in a variety of ways to build up a wide range of different structures and designs. Mod-X consists of various standard beams, columns, walls, floors and roof panels which may readily be used separately in traditional types of buildings as well as for fabricating new ones. This method is equally suitable for larger buildings such as schools, hospitals, factories and churches.

BUNGALOW USING MOD-X SYSTEM





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Structure

FRAMES

BRITISH engineering structures, like the Sydney Bridge, are world famous. In many a city and small town overseas there is a cast-iron or steel market hall, the structure of which has been sent out from the United Kingdom decades ago. Though engineering structures, including the frames of buildings, are still being erected in many parts of the world by British structural engineers using British steel, the need for steel economy has frequently meant, at any rate for larger buildings, construction in reinforced concrete. However, this same need for steel economy has encouraged British manufacturers to develop light, but rigid structural frameworks of welded sections or tubes, made of steel or aluminium; protective treatments have been developed to safeguard the thinner members against corrosion. Structures of this type have frequently been used for school construction in Britain in recent years; first developed for single storey schools, they are now being used for higher buildings as well. They are eminently suitable for many purposes overseas: for example, schools, hospitals, storage buildings, offices, rest camps, airport buildings. Sometimes the roof structure alone is supplied, possibly with roof covering and fittings; it has to be erected on walls of local materials. But other manufacturers, like those of the Arcon structure, provide frameworks complete with columns as well as roof. There are advantages in this; it is often easier to set out the building work, and in climates where the sun, or the rain, is strong a roof which is soon ready permits construction of the walls under cover with either local or imported materials. Up to now, there has been little dimensional co-ordination between structural systems and components—at least among those available for use overseas; but it is hoped that the recent interest in Britain in modular planning may do much to correct this. So far only building structures have been mentioned—complete houses are described in another section—but British manufacturers export a variety of other structural components as well: those of the ubiquitous Bailey bridge, for example.

* * *

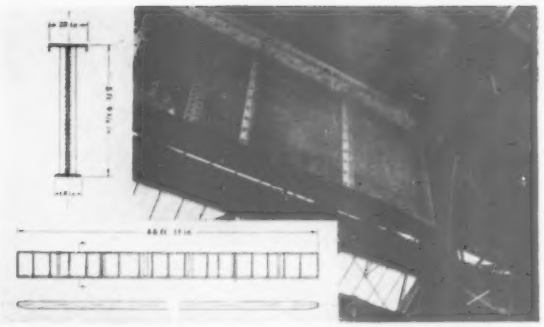
[1] Modifications are being carried out to Birmingham City Transport Depot by Samuel Butler & Sons, Ltd., using aluminium girders which are 6ft in depth spanning 67ft. The flange plates are Noral 65 S.W.P. alloy and the angles Noral 51 S.W.P. Made by the Northern Aluminium Co., Ltd.

[2] Apee Portal Frame Buildings, by the All-Purpose Building Co., Ltd., one of a range known as the R.S. system whereby wall units and rafters are connected together, or by means of a knuckle unit of variable dimension. **[3]** To form an infinite variety of sizes. Made by Chamberlain Industries, who also make an erection kit that includes a sectional mast and everything else necessary for putting up the building.

[4] The Arcon Sawtooth Roof Building, one of the range of Arcon buildings with the peculiar characteristics required by certain commercial undertakings. The North Light roof obviates direct sunlight, the construction gives large clearances of floor space, 50ft in each direction per bay. Two column heights available, 13ft 6in and 19ft 6in. By Taylor Woodrow (Building Exports), Ltd.

[5] This picture shows a drawn detail of the construction of the Apee building seen in Fig. **[2]**.

[6] The Arcon Three-pin Frame, a frame and roof designed for locations where wind-loading requirements are light and bedded foundations are unnecessary. The supports, of open lattice work construction, are surface fitted and spaced to give a 21ft span. With side extensions the structure can provide a maximum cover of 42ft. Lengthways the minimum size of the structure is two bays of 12ft each; more bays may, of course, be added if desired. Walling must be supplied from local sources. Made by Taylor Woodrow (Building Exports), Ltd.



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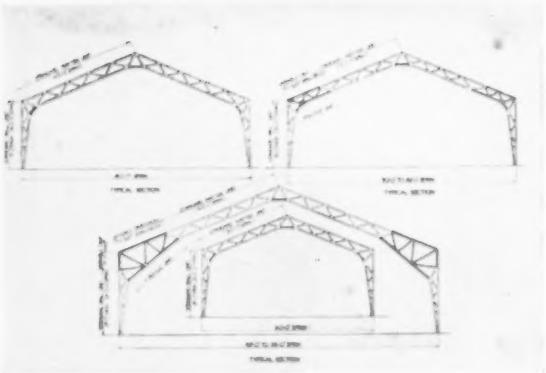

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Structure

WINDOWS AND DOORS

A DOOR, or a window, may serve a variety of uses: keep out intruders, permit free entry; screen against the sun's heat, be a source of daylight; provide ventilation for heat and comfort, be weather-tight against the dust or the cold. Most doors and windows exported by Great Britain are made of steel or aluminium; they are light and easy to transport, and are durable. Even in timber-producing countries like Malaya and the Gold Coast, steel windows and door frames are frequently used in low-cost building in preference to wood because of their resistance to termite attack. Though not in every way always suitable climatically—in a hot, humid climate they may give inadequate ventilation with shade, and may have to be locally adapted to give proper protection against intruders; in a desert climate they may not be sufficiently weather-tight against heat and dust—British standard metal windows, because of their price, have a ready market overseas. For more expensive building, an increasing number of special-purpose designs—provided with sunscreens, fly-screens, etc.—are available. For use in humid, tropical climates, a steel window can now be obtained in which locally made hardwood louvres can be fitted; another design can be fitted with glass louvres. Though British manufacturers have yet to market a reasonably priced, adjustable aluminium-louvred window of the type now in all but universal use in Florida and Puerto Rico, a number now make the adjustable venetian blinds, built up of light aluminium slats finished in pastel colours, which are so popular in North America. Other products which have a market all over the world are British roller shutters, and gear for sliding doors.

* * *

[1] Fenestra-Crittall A/G, a subsidary of the Crittall Manufacturing Co., Ltd., make this new and very interesting, Continental type, double-glazed casement window. Made in two sizes of section, to accommodate large or small areas of glazing. The inner leaf is easily opened for cleaning by the moving of two catches. **[2]** This very simple system should prove very popular and savings resulting from the economies of heat should soon repay the extra initial cost involved, about 80% above normal single-glazed windows.

[3] John Thompson Beacon Windows, Ltd., make this example of double glazing which uses handle-operated gears to move the sliding sashes. Power operation is available and, by opening one window in each leaf and not opposite, burglar-proof ventilation is claimed.

[4] Crittalls standard verandah screen is made in 12 sizes, greater areas are catered for by attaching two together in line. Heights are 3ft 3⅛in, 4ft 3⅛in, 5ft 2⅛in and 7ft 2⅛in.

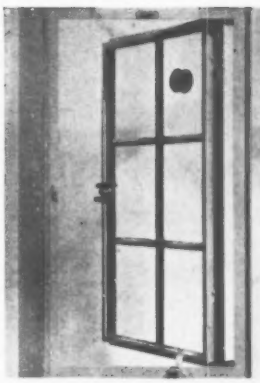
[5] This illustration shows the mechanism of the General Electric Co., Ltd.'s, Automatic sliding doors which are electrically opened on the pressing of a button. The doors have a sensitive leading edge that ensures immediate reversal should an obstruction be encountered. When open the doors remain open for a selected period of time, then close automatically.

[6] A new method of flush-door construction by Moulded Components (Jablo), Ltd. The core is cellular—similar to corrugated paper—and it is claimed that it prevents warp and wind, improves sound and heat insulation and, of course, saves timber.

[7] G. Brady & Co., Ltd., well known as manufacturers of wood, steel and aluminium alloy rolling doors. Illustration shows sections through both wood and steel doors. Wood doors can be fitted with plastic windows, all doors may be electrically operated.

[8] The modern collapsible door is finding steadily increased use in industry and the fully automatic (invisible ray operated) shutter door of to-day as developed by The Bolton Gate Co., Ltd., is a far cry from the lattice gates which were the starting point of what is now an important industry.

[9] Windows opened by "Teleflex" remote control gear, by Williams and Williams, Ltd., it is made in two sizes, with ⅛in cable and $\frac{5}{32}$in, use depending upon weight of windows to be moved.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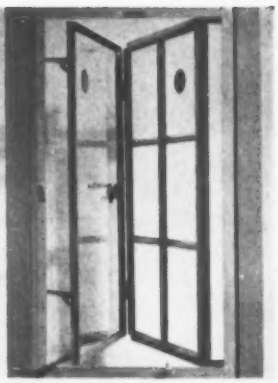
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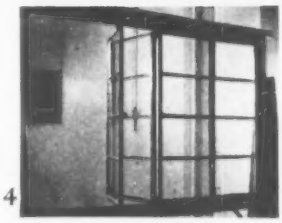
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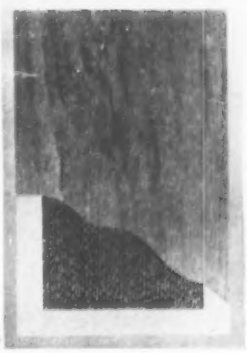
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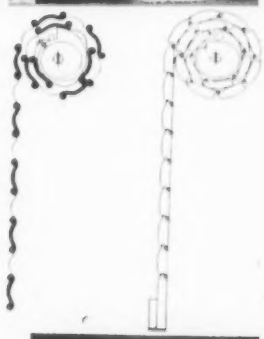
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Equipment

TOOLS

THE most notable tendency in the use of the smaller tools is the increased use of power, electricity for drills or planes, with small petrol engines in the larger tools such as floor sanders or vibrators, where weight is of less importance, and may even be an advantage. It is frequently thought that electric tools are only suitable for work where there is an existing mains supply, but a number of firms produce portable generators, diesel or petrol driven, in sizes up to 5 kilowatts or more, enough to run a number of different tools. It might be thought that compressed air, to which contractors are accustomed for paint sprayers and road drills, would be the most popular form of power, but the efficiency of all compressors is low since a large proportion of the energy supplied to the compressor is inevitably dissipated in heating the air.

In the design of power hand tools there is a growing tendency to regard the drill as a prime mover which can be equipped with a number of different fittings. There are bench stands which convert the drill into a workshop tool which can be used with mortising chisels, or with a mandrel to take sanding discs or wire brushes or polishing mops. There are hole saws which will cut up to 4in diameter in wood or metal, and two-speed drills with cylindrical cutters which will bore deep holes in brickwork up to the same diameters. Thus with a drill and sundry attachments, a circular saw, and perhaps a power plane, most types of work can be efficiently and cheaply carried out.

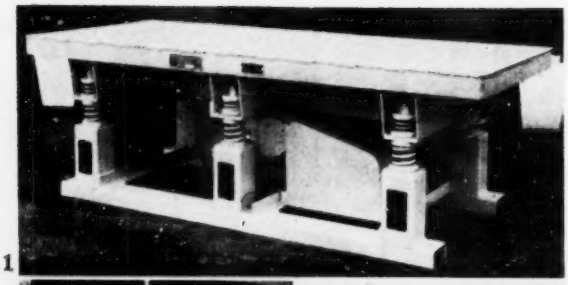
Other developments in the larger tools include power floats, circular discs driven by electric or petrol motors, for providing a finish to concrete floors level enough for the final finish, wood block or jointless, to be applied without laying a screed. Drum and belt sanders are also produced for cleaning off existing floor finishes.

The range of tools designed for operation by hand alone has been increased by a number of specialist pieces of equipment; cutters for slates, drills with special tungsten tips for cutting hard materials, wires with file-type teeth which, tensioned in a hacksaw frame, will cut metals or other hard materials to any outline. The range of pipe benders has also been extended and there are now tools which will bend small-bore pipes by hand without kinking, and the larger hydraulic types for cold bending heavy-gauge tube in diameters up to 8in or more.

* * *

[1] Vibrating tables of the type illustrated at the top of this page are produced by a number of different firms and in various table sizes. Tables of this kind give a high density to the vibrated material, the average consolidation being from 10 to 15 per cent above that obtainable with hand tamping. The makers are C. H. Johnson (Machinery), Ltd. **[2]** is an immersion-type concrete vibrator by the same firm, the motive power in this instance too being petrol or electric. The vibrating spade is of small diameter so that it will pass easily between closely spaced reinforcement. The nett weight of the electric version is only 49 lb and it has a radius of action of 12ft at a frequency of 3,000 cycles per minute. The capacity of tools of this kind naturally varies with the workability of the concrete, but they will compact from 60 to 80 cubic yards per eight working hours of concrete up to ¾in aggregate and about 2½in slump, and from 10 to 15 per cent less with larger aggregates and slumps of 1½in. **[7]** shows a vibrator for fitting to screed boards.

Various types of floor scrubbers, polishers and finishers are produced, and may be of the disc type or fitted with cylindrical brushes. The cleaning and polishing machines are fairly well known, but **[4]** shows a cleaner-scraper fitted with steel brushes and used for removing grease or other embedded dirt and at the same time roughening the surface so as to provide a key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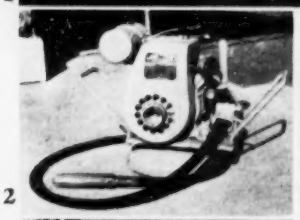
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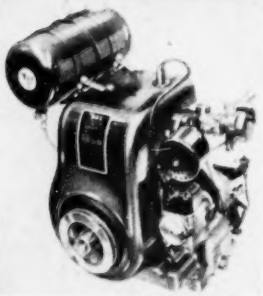
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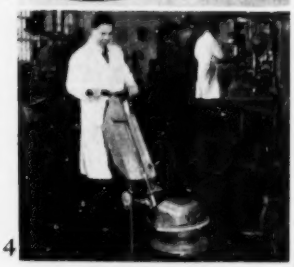
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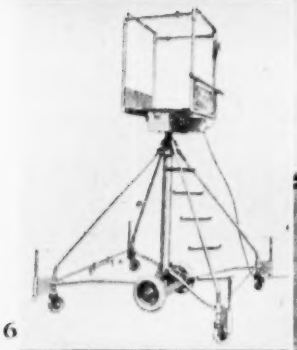
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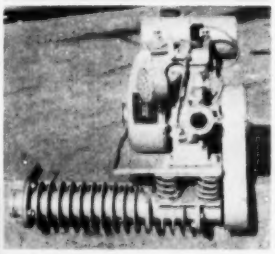
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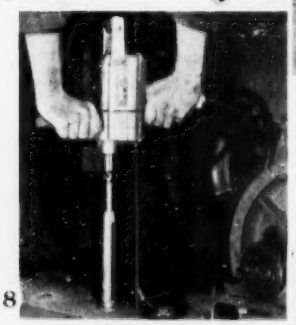
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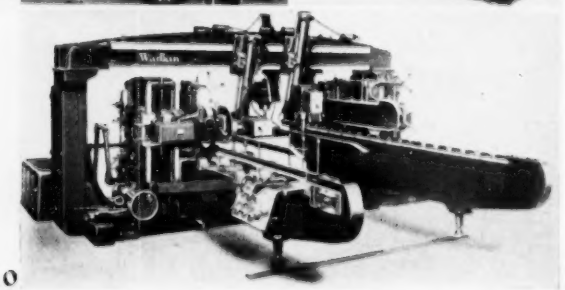
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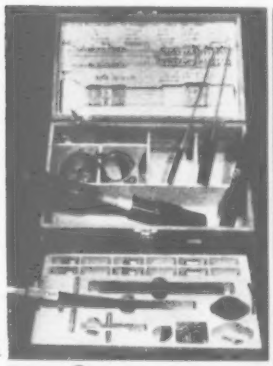

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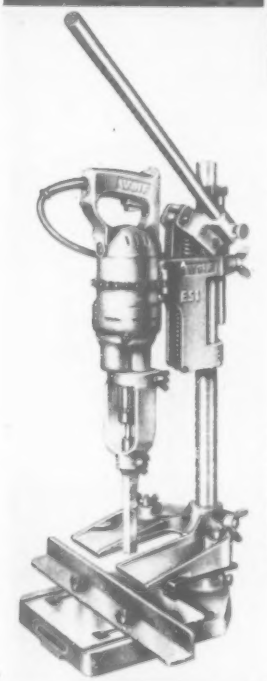

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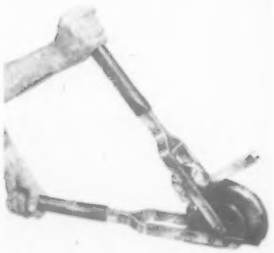

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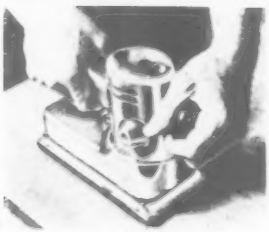

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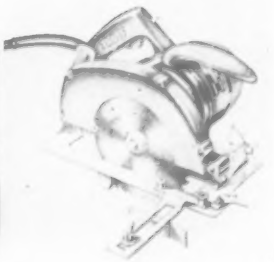

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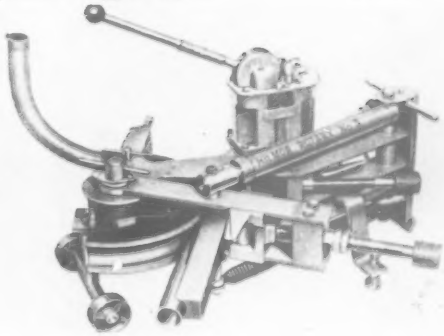

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for some other type of finish. **[5]** shows a comparatively new development, a power-driven float made by the Columbus-Dixon Company, who are also the makers of **[4]**, electrically driven models are produced as well as the petrol type shown. The steel disc, ribbed for stiffness, rotates comparatively slowly and provides a very level finish for the floor concrete at the same time as it compacts it. It is very much faster than the normal hand float, and the surface is remarkably level, so much so that it is normally not necessary to provide a screeded sub-floor before the final finish is applied. The saving in cost is considerable. For the cleaning off of timber floors drum sanders are useful as they will cover a band 12 or 15 inches wide in one pass, and several models are made in which the drum is supported from one side only, so that the other end will clean the floor right up to the skirting board. The type shown at **[9]** (Nufloor) has a suction fan and bag for the sandings removed from the floor.

[6] shows the Beanstalk, a working platform mounted on a hydraulically operated telescopic cylinder. The small caster wheels at each corner allow the Beanstalk to be easily moved about the floor of the room, and there are also screw jacks for levelling when it is used on uneven ground outside. When the four legs are folded the larger central wheels allow the unit to be moved easily over rough ground, and at the same time the width is small enough for it to be able to pass through the normal door. In the model illustrated the hydraulic supply is powered by an electric motor, but there is another model in which the pump is operated by a hand lever.

In all areas where there is no mains electricity supply a petrol prime mover is the standard practice in the smaller machines, for there are no Diesels of less than 3 or 4 horse power. A number of firms produce small engines, two- or four-strokes, and the one shown here at **[3]** is the 320 c.c. Model F B.S.A., which is used for all sorts of purposes, such as driving portable pumps, generators, concrete mixers. It is air cooled and petrol consumption is low.

Many types of electric drill are produced with attachments for drilling hard materials such as brick, concrete or tiles. The drills themselves may be two-speed models, and the boring tool itself may be tipped with one of the high-hardness metals so that life between sharpenings may be long. For holes of diameters larger than about 1in it is more usual to employ hole saws, or some form of cylindrical cutter with teeth on the end of the cylinder. These cutters are generally located with a central pilot drill, but they save a good deal of time as the amount of material to be drilled is reduced. Illustration **[8]** shows a two-speed drill by Desoutter, Ltd.

Woodworking machinery is produced in considerable variety, some of the most interesting tools being the multiple machines which will do almost all the sawing, planing and moulding that a small builder might require. In the larger joinery shop, however, it is the usual practice to employ special-purpose machines, and **[10]** shows the Wadkin type W.F.B. double-ended tenoner, a most versatile machine which has an overhead beam to carry any number of gaining spindles up to a maximum of six. The maximum width between shoulders of tenons is 8ft 2in and there is also another model without the overhead beam.

Cartridge-powered hammer guns are now widely used for fixings of all kinds and can be operated by semi-skilled labour. All the fastenings have hardened-steel points and are propelled into concrete, brickwork or steel and the other usual building materials by means of a blank cartridge. The blanks are made in four or more different strengths, according to the material in which the studs are to be fixed, and the hammers have safety devices so that they cannot be fired unless the muzzle is pressed hard down. Fixes consist of studs, nails, hooks and many other items, including special brackets for cables. Battens can be fixed by firing the nail straight through the timber into the wall. The model shown in **[11]** and **[12]** is made by F. H. Bourner.

Power hand tools are produced in a considerable variety, with numerous attachments for special purposes, such as the chisel mortiser in **[13]** (Wolf). Belt and disc sanders are also produced, some of the belt models having a bag like the floor sanders: sanding discs mounted on mandrels are also made, and these can be used with the ordinary drill. Some firms produce sanders in which the pad has an orbital movement **[16]** (Black and Decker, Ltd.) of $\frac{1}{4}$ inch or so. This type gives a very smooth finish and avoids the lines and whirls which can easily be produced by an unskilled operator with the other types. Circular saws **[17]** (R. Wolf), can be used not only for timber but can be fitted with abrasive discs for cutting stone or corrugated sheet and other blades for different materials. For maintenance workshops the portable bench grinder **[14]** is another useful piece of equipment also by Wolf.

Pipe benders are useful for electrical conduit or light-gauge copper for plumbing, and the tubes are bent to a smooth radius without kinking. **[15]** shows a small hand-model (Lawler, Ayers & Co., Ltd.) while **[16]** is a larger bench-type hydraulically operated with a hand pump (Hilmor). Larger models are produced which will bend pipes up to 6-inch diameter or more.

Equipment

PLANT

During the past year the urgent need to save labour costs has continued, and most manufacturers are now producing quite a wide range of different models so that it is easier to find a size suitable for the particular job in hand. Concrete mixers, for example, are produced in small sizes down to 3/2 or less, and at the other end of the scale there are numerous large models suitable for big civil engineering contracts where there will be a large central concrete mixing plant with the associated weighbatching and storage equipment. One or two firms produce hand-turned mixers, less to save labour than to ensure proper mixing, which is simple in a drum but which can easily go wrong through carelessness if it is done on the board.

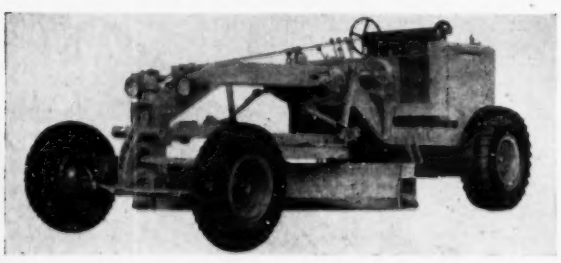
Among the larger items of plant one of the most interesting developments is the use of rail-mounted tower cranes instead of the fixed types. The early models were imported, but some are now being produced by British manufacturers and are now being used not only for multi-storey buildings but for housing work. The usual layout is to have a material store in the centre of the site and the crane does the whole of the lifting, bricks, mortar, tiles or slates, roof trusses and concrete direct to its required place on the scaffold: it is also possible to build brick chimneys in sections at ground level and lift them into position in lengths of 3ft or so.

Much attention has also been paid to the transport of cement in bulk, largely owing to the high cost of paper bags, which add about 15 per cent to the price. Some firms produce a system of metal containers which are filled at the works when empty, and these have the advantage that they form in themselves a weatherproof store, in others the lorries deliver by gravity into a storage bin, but there is at least one method in which the cement is delivered by a lorry with pressure-tight containers, compressed air being used to force the cement to the top of a storage silo, whence it can be fed by gravity to the concrete mixer and automatically weighed into the mixer hopper at the same time. With all bulk methods there is the additional advantage that the unloading can be done by the driver only, and that there is no need to turn labourers on to unloading bags as soon as the lorry arrives.

* * *

In the field of large-scale plant for earth moving the British manufacturer is now producing machines which have previously had to be imported from America. The large size Vickers Rolls-Royce diesel tractor, for instance, is now in large-scale production and is available with all the usual equipment such as scrapers and bulldozer attachments. **[2]** It may be noted that the track is flexible, owing to the fact that the two front pairs of track wheels are independently sprung and pivoted. A medium (40 h.p.) tractor for heavy haulage work, and with a drawbar pull of 7,000 lb is the David Brown type VIG/1C. **[3]** Standard equipment on this model includes a winch with a 15,000 lb pull and a sprag.

Graders **[1]** Blaw Knox, are produced in more than one size, the model illustrated having all the usual adjustments for the blade, as well as the canting front wheels used when side thrusts are heavy. The same firm also produces a larger model



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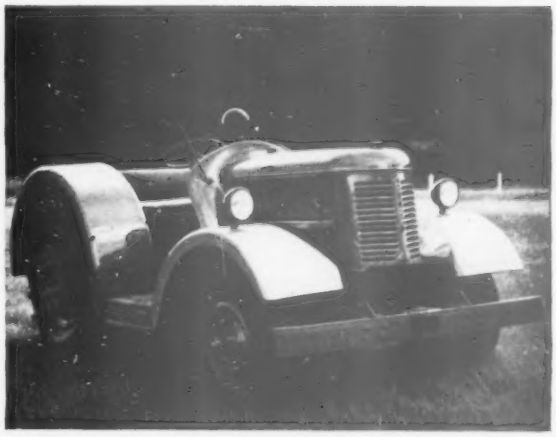

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which has four rear driving wheels: both types have diesel engines.

Road rollers are produced in all sizes from 1cwt or so upwards, the illustration **[4]** showing the Aveling-Barford tandem type. Other makers produce vibrating rollers in smaller sizes either for hand pulling with power vibration, or with power traversing as well. It is perhaps worth mentioning that Aveling-Barford are the original patentees of the method whereby the proportion of load on the back and the front rollers may be varied at will. The transport of materials in bulk, or of mixed concrete, has received a good deal of attention. Dump trucks in the larger sizes have been produced for several years **[5]** the Aveling-Barford 3-yard model, but the use of power barrows with a capacity of ½ yard or so is comparatively new. They can be used for placing concrete, since they are low enough to go under the drum of a concrete mixer, but they may also be used for removing excavated earth or carrying aggregates. On several models the hopper body can be removed and the barrow fitted with a flat platform for carrying bricks, tiles, crates or such things as sanitary fittings, while some of the slightly larger types are powerful enough to pull a trailer as well. In type **[6]** (Aveling-Barford) the driver rides on the machine, but in some models the driver merely walks behind and steers, the controls being so arranged that if he should let go the barrow automatically stops with the brakes on. Some firms also produce specially large hoppers for carrying light but bulky materials such as coke. In the larger sizes of dumper it is now common practice so to arrange the controls that the driver can reverse his seat and steering gear, and, with a duplicate set of pedals, sit so that he is facing forwards whether the load is in front or behind him. This gives more accurate control at loading or dumping points with the load in front of the driver, but trips between the two points can be made with the load behind, and better visibility. An alternative method of concrete transport is the monorail transporter **[7]**. With this system the run is made up of rails in 12-foot lengths supported on adjustable legs. The rails are produced with points and junctions and can be simply moved, while the 12-foot span makes it possible to bridge across trenches or mud. The transporter consists of a hopper which will take the full output of a 14/10 mixer, running on the rail and driven by a 3 h.p. petrol engine. Stops are arranged on the monorail at the mixer and at the concreting point; as soon as the hopper is loaded the hopper is started and moves off at the rate of 100 yards a minute until it reaches the spreading point where it automatically stops. The spreader then returns it for the next load and it stops, again automatically, at the loading point under the mixer discharge. No driver is required and trailer wagons may be used if there are two mixers. The hopper will negotiate curves of 12ft radius, and curved rails are supplied in 6ft lengths. The makers are Road Machines (Drayton), Ltd.

In the site fabrication of reinforcement or other steel assemblies there are a number of useful machines. **[10]** shows a bar cropper by F. J. Edwards, who are also the producers of the Besco punching and shearing machine. **[9]** Other firms produce bar benders either for making simple end hooks or with adjustable stops so that stirrups and other shapes may be quickly and accurately made in quantities. Portable welding sets, petrol or diesel driven, are produced in many sizes to provide current either for a single welder or for a number, the example shown in **[11]** (Morco) using the Ford industrial diesel and being supplied with alternative generators giving peak currents of 360 or 480 amps. The unit is arranged for high-speed towing and has its own braking system.

For spray painting there is a considerable amount of equipment **[8]** (B.E.N. Patents, Ltd.), being a typical self-contained model which is easily portable. Larger plants are produced with secondary pressure chambers in which the paint is under air pressure and is forced through pipes to the spray gun, the advantage being that the operator does not have the weight of the paint and its container to hold, the only leads being the paint and the air lines, while the paint in the pressure container

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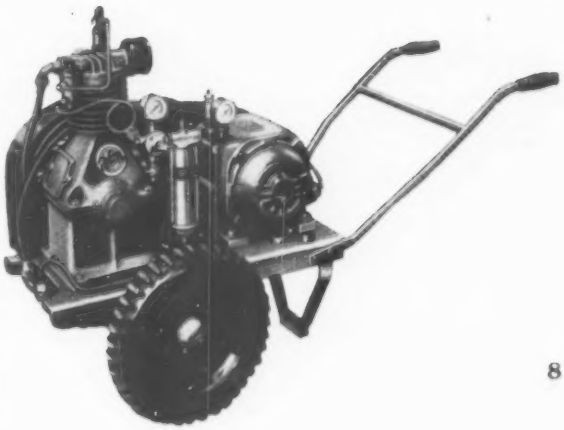

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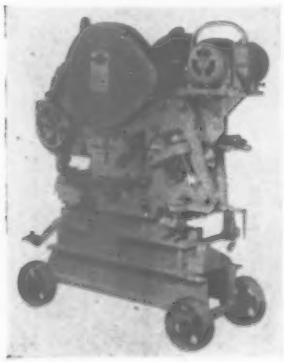

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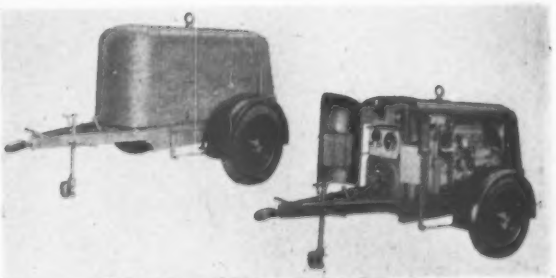

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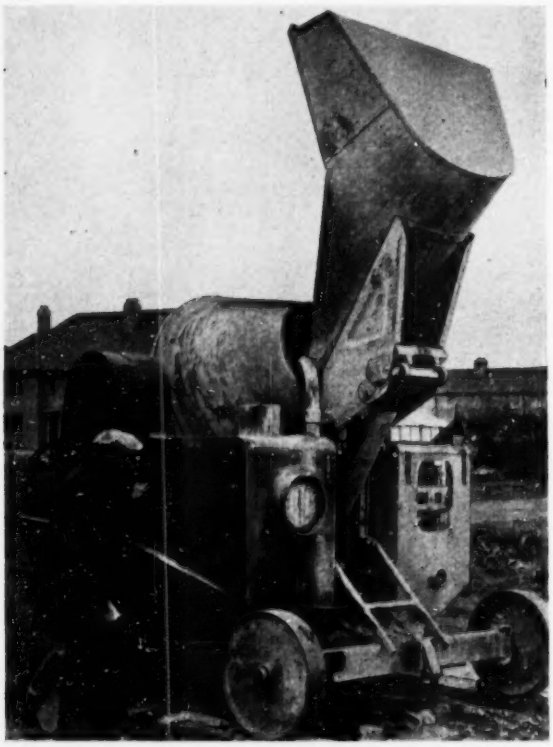

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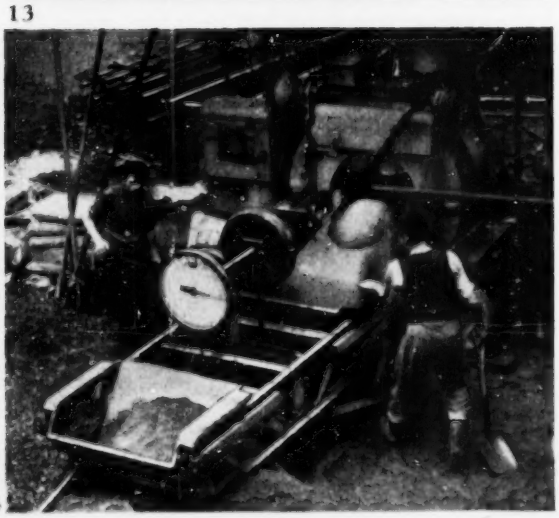

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can be stirred with internal paddles operated through an external handle.

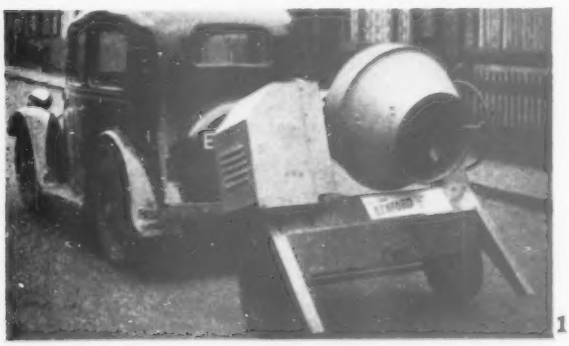
Several manufacturers already produce mixers in which the cement and aggregates are weighed as they are loaded into the hopper, and the water is measured in the same way, several mixers being so arranged that the water supply, once set, is automatic with the tipping of the hopper. At the same time there have been further developments in methods of bulk cement supply [12] showing a method with pressure-tight containers and compressed air. (Thos. W. Ward.) The hoppers each hold 3½ tons of cement and are designed for a working pressure of 40 lb. The cement is discharged through a 3in diameter hose by means of air from an engine-driven compressor on the lorry, the normal site equipment being a silo in which the cement is stored so that it will feed into the hopper of the concrete mixer by gravity. The equipment on the lorry will discharge 7 tons of cement in less than 20 minutes and at the same time lift it to a height of 35 feet, the complete operation being carried out by the driver of the lorry without any help from site labour. The illustration shows a two-hopper lorry, but the makers also produce a three-hopper model which carries just over 10 tons of cement.

Weighbatching plant is produced in many different sizes from the large scale units suitable for major civil engineering jobs to the simpler hand-loaded swinging types suitable for mixers of about 10/7 size. [14] shows a swinging type in which the aggregates are loaded until the weighing pointer reaches a large and easily seen mark (adjustable) on the scale. Two or even three aggregates may be loaded into the same hopper successively, and it is only necessary for the loaders to change from one aggregate to the next when the pointer reaches the appropriate spot. As soon as the batcher hopper is full it is swung round ready for emptying into the mixer hopper. As can be seen in the illustration, one of the hoppers is being emptied into the mixer hopper, and the filling of the other has just been begun. The makers of this batcher are Road Machines (Drayton), Ltd. Larger weighbatching plants are produced as multiple hoppers to contain the different aggregates and are loaded by bucket elevators from the various stockpiles. The outlets from the various compartments are grouped over a weighing hopper which in turn feeds by gravity into the hopper of the mixer.

Concrete mixers have shown several improvements, and several makers are producing small models which are light and can be easily towed from one small job to another behind a car. [15] shows the Little Benford, which weighs only 2¼cwt and is of "half bag" capacity. It is fitted with a small Villiers four-stroke engine which uses roughly half a gallon of petrol in a day's work. There is also an electrically driven model with a ½ h.p. (about 400 watts) motor which can be run from an ordinary 5amp domestic socket. Price is very low.

At the other end of the scale is the Winget 14/10 weighbatching tilting mixer [13] in which control has been made as simple as possible. It has been designed to produce accurate concrete without the need for a subsidiary plant and to give much greater mechanical efficiency. The weighbatching mechanism is built in, and the water control is accurate to 1/10 gallon. The operation of all the controls is hydraulic and the complete mixing cycle involves only three movements of a single lever. When the correct charge has been weighed into the hopper the lever is moved to position one, when the drum tilts to the charging position and the hopper is raised. At the same time the water dispenser injects the set quantity of water during the passage of the dry material into the drum. When the maximum discharge angle of the hopper is reached it is automatically held in position. The second movement of the lever lowers the hopper to ground level for the next charge, the drum swings into the mixing position and the water dispenser is re-charged. The third lever movement discharges the mixed concrete from the drum, either completely or in smaller quantities.

[20] and [21] show two views of the Warry Hoist being moved to the site and erected. Hoists of this kind are now a



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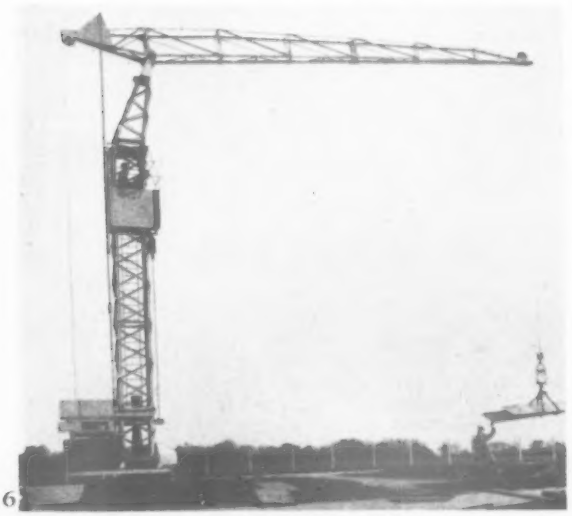

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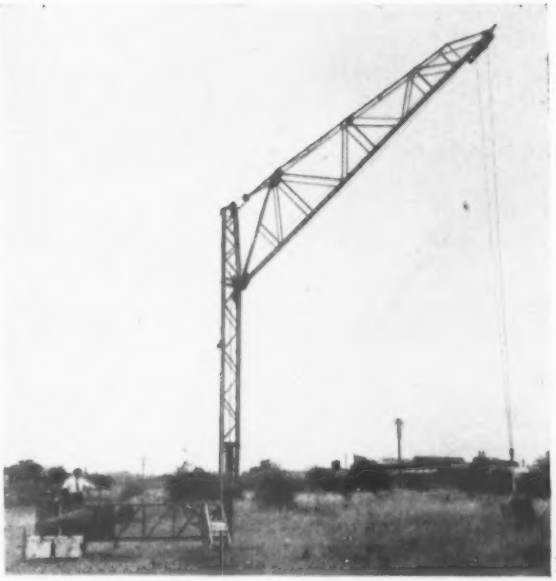

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normal and well accepted method of building even on small jobs, and are produced by a number of different makers. The smaller models will deliver materials to first floor scaffold level, but others are made with extending tower sections and will work up to heights of 80 feet or more. Petrol or electric driven, they are easy to move about the site and are easy to erect. They have extremely simple controls, a single cord to the clutch and brake, and the usual safety devices are fitted so that the platforms are held if the rope should break. Safety regulations now make severe demands for the fencing of the platform space and the provision of gates, and although these may prove to be a little time wasting in use all manufacturers fit them.

Rail mounted tower cranes are now coming into production in this country, **[16]** showing the Wild-Fawcett, which will lift 12½cwt at a radius of 42ft 6in or 35cwt at 13ft. This crane is based on a German design, but has been considerably revised so far as the electrical equipment is concerned, and which also now has a safe load indicator and automatic overload cutouts. All these cranes are used on a normal rail track with a gauge of from 6ft to 9ft. They have been used on housing estates and for the erection of flat blocks and office buildings. Owing to the large radius at which many of them operate they can often cover the whole area of the building from a single rail track parallel with the long side of the building. They can be used for erecting the steel or reinforced concrete frame, for pouring concrete floors with bottom dump skips, or for lifting bricks or tiles in clamps or trays, most of the manufacturers themselves producing the necessary equipment. **[19]** shows a concrete skip which has doors at the bottom and which is also shaped so that it rolls over when it is lowered to ground level, thus bringing its filling orifice below the level of the average concrete mixer which does not have to be raised on timbers to give a high discharge level.

Another type of crane, produced for house building only, is shown at **[17]** (British Hoist & Crane Co.). It will lift 6cwt at 35ft radius and 10cwt at 21ft, while the maximum hook height is 48ft. This is not a mobile crane in the sense that it does not run on a rail track, but it is so arranged that it can be readily moved on Jubilee track and set up again in a new position in an hour or so, the rail track being used to bring the materials to the crane. At its maximum radius it will cover the whole area of the average pair of semi-detached houses, and the fact that the jib can be luffed allows the jib traveller to deposit tiles exactly where they are needed on the roof. A particular feature of the design is that the crane is self-erecting and that none of the cables has to be rove off and anchored each time the crane is erected.

[18] A semi-mobile crane by Steels Engineering Products, Ltd., The Coles "Weland" model, capable of lifting up to 5 tons, to a height of 80ft.

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Materials

PAINT

SIGNIFICANT among recent developments in paint is the spread in popularity of plastic emulsion paints and the adoption by certain manufacturers in this country of improved colour systems. Almost every reputable manufacturer in Great Britain now produces plastic emulsion paints some of which claim resistance to normal acid, grease, alkalis, oil and fungus impregnation. They possess the merit of being extremely easy to apply, and are available in matt, eggshell and high gloss. Amongst well-known firms who market plastic emulsion paints of one kind or another are:—Silexine Paints, Ltd., I.C.I., Ltd., Sissons, Ltd., Walpamur, Ltd., Vitretex, Ltd., Lewis Berger, Duresco Products, Ltd., John Hall, Ltd., Jenson & Nicholson, Ltd., Charles Turner & Co., Ltd., Nichols & Clark, Ltd., Smith & Walton, Ltd., International Paints, Ltd., British Paints, Ltd., Leyland Paint & Varnish Co., Ltd., Hadfields (Merton).

Two paint firms have introduced new colour systems this year, Messrs. Jenson & Nicholson the Colorizer System for their Robbialic paints and International Paints, Ltd., their Selectatint System. The Colorizer system provides 16 different colours which can be mixed with a white or grey base paint in suede, eggshell or enamel finish and undercoat to produce 528 different tints and 470 different shades of paint. This system was described in the *A. & B.N.* issue, February 5th, 1953. The Selectatint System is similar to the Colorizer but makes use of a white base paint only in gloss or matt with which 14 different colourants may be mixed to give 168 different tints. A substance which subdues the tint—Toner X—produces the darker shades which make up the range.

Both systems have the great advantage that they are easily mixed and small quantities can be mixed to the exact shade required.

Elaborate colour systems have been in use for some while in the American building industry. One system of colour annotation from America well known to Architects in this country—the Munsel system—has been used to some extent for colour in many of the Hertfordshire Schools and elsewhere. In the years since the war an increasing number of paint manufacturers in this country have mixed paints to order in the Munsel range of colours.

In the general run of paints as shown by manufacturers' colour cards a continuous improvement is noticeable. The number of colours steadily increases and the quality of colour has improved in many cases.

In addition to the ranges of gloss paint, flat oils, eggshells and water paints there are available for the overseas buyers special paints for different purposes. Amongst these may be mentioned—stone paints for application on concrete and masonry, stucco or rendering; paints containing chlorinated rubber for application over asbestos cement products and for resistance to chemical attack; bituminous aluminium paint for use over tar, asphalt and bitumen to act as a heat reflector, and bituminous paints for iron and steel protection. There are also well-known brands of anti-corrosive and rust-inhibiting primers and undercoats for use on metal work.

Many of the large paint manufacturers already provide advice free of charge to Architects and their help in specification problems is invaluable.

Lastly should be mentioned the development of indigenous paint industries in tropical climates. Where communications are difficult and where local materials may be found to have useful qualities new industries may arise. In this matter the long experience of British paint manufacturers backed by their extensive laboratories would be invaluable to give a lead.

OFFICE EQUIPMENT

THE Mason Mercury Reproduction Unit **[1]** is a machine for the larger office, made by E. N. Mason & Sons, Ltd. This machine has a very high potential output for producing dyeline prints and is a combined printing and developing unit. The light source consists of nine mercury vapour lamps or one quartz tube, according to choice and, also, machines are available with different methods of control ranging from manually operated hand lever speed control to fully automatic.

The principle of operation is simple. Tracing and print material are fed into the feed slot. In one continuous operation the print is exposed, the tracing falls away from the print into the front delivery tray and the print passes up and under the top tracking tapes through the developing unit and out into a delivery tray at the back of the machine.

[2] This illustration shows the effect of the Ammonax colour process. The dark lines are blue, the light are red, and they are produced from one tracing, the blue from the ink line, and the red from the pencil line. In this way greater clarity can be given to what would ordinarily be a very complicated drawing. The relationship of permanent to temporary, old and new work, the superimposition of supply runs, etc., the application is endless. By Hall Harding, Ltd.

[3] A Gestetner duplicator, model 160, called the "Express Inker," one of their latest models, the feedboard takes up to 17¼in by 14½in and goes down to 5in by 3in. A great number of Gestetener's models has been exported.

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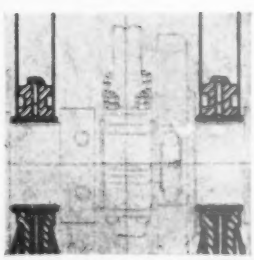

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Materials

SHEET MATERIALS

SHEET materials, such as corrugated galvanized iron or asbestos cement, are among the first needed for shelter building in a new country; they continue to be required in ever increasing quantities as the country develops. Among Great Britain's principal building exports are the long established sheet materials like corrugated galvanized iron, aluminium and asbestos cement; new shapes and new methods of fixing are widening the field of their use. Side by side, newer materials—plastic sheets, chip-boards, water-resistant plywoods and the like—are being marketed in increasing variety. Sheet materials have to be strong yet light in weight. They may often have to possess special properties as well: durability like asbestolux, an incombustible insulation board made with special asbestos fibres; a high reflectivity to both solar and low temperature radiation like aluminium and a number of its alloys; good thermal insulation like wood-wool slabs and the many insulating fibre boards now available. A translucent material like corrugated Perspex—recently on sale in curved form—may be required. The sheet material may have to be a good sound absorber like Stramit, it may be needed ready finished to reduce site work like Warerite or Holoplast, the self-supporting, ready finished plastic walling material which has found world-wide use. Corroplast, a corrugated roofing sheet made by the same manufacturers from a synthetic resin bonded paper laminate, has also—because of its strength, lightness and ease of erection—found a ready market overseas from the Caribbean to police camps in the Malayan jungle. Associated with the sheet materials, which frequently form the background or decking on which they are laid, are bituminous roofing felts and damp proof courses. British manufacturers are experienced in the problems which a variety of climates overseas may afford.

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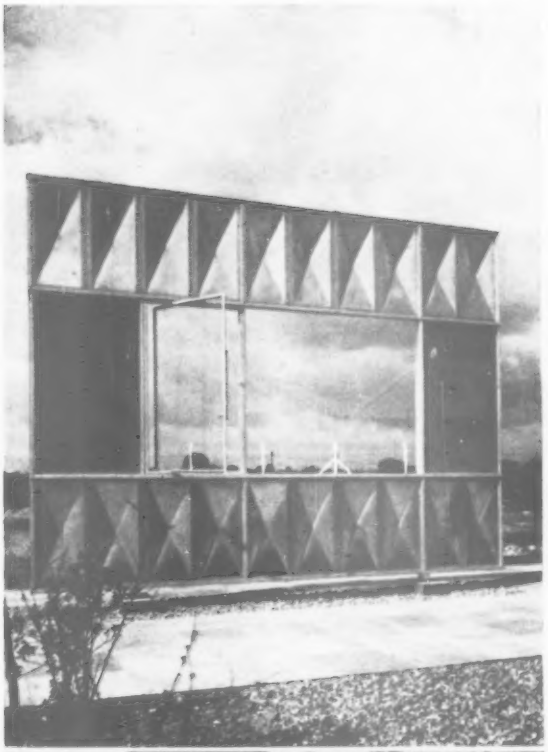

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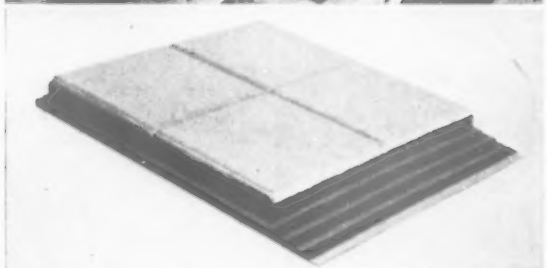

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[1] "Arcon" curtain walling, a prototype erected at Southall by Taylor Woodrow (Building Exports), Ltd. Designed to provide a factory-made infilling for framed structures, the construction is in extruded aluminium alloy section frame with flat or dished panels in aluminium or steel. Variations on the glazing are innumerable and the whole is self supporting. Designed on a planning grid of 40in with vertical increments of 3ft.

[2] Chipboard has now been in quantity production for some years, and in view of the general overall improvement in the quality of products offered, its use in the building industry has been increasing very rapidly indeed. The Ministry of Works and the Ministry of Housing have been kept fully informed of all new developments, particularly the use of chipboard for flooring on joists in all domestic housing. The Building Research Station has issued reports on the use of chipboard as suspended flooring.

This illustration shows Weyroc being used as a flooring material, made by the Airscrew Co. & Jicwood, Ltd. Other manufacturers of this type of material include British Plimber, Ltd., who supply their material also in blocks and tiles.

[3] Permatile roofing by Messrs. Permanite, Ltd., consists of three layers bituminous felt roofing laid with a broken joint and sealed with hot bitumen and finished on top with 9in × 9in × 1¼in thick heat insulating. Light reflecting and hard wearing tiles made with a pumice aggregate. When laid the tiles are sealed at both bottom and sides, the latter forming an effective expansive joint. If the tiles are white washed a further reduction in the transmission of solar heat is gained.

[4] Stelcon (Industrial Floors), Ltd., makers of steel-clad rafts for heavy-duty floors. These rafts are reinforced concrete slabs edged with steel angle and finished with a special hard-wearing surface. Each raft weighs about a ton and is laid on a bed of sand 4in to 6in deep with ¼in gap between.

Corrugated sheeting, principally for roofing, is now made in "Cascalite" shatterproof translucent sheeting by Cascelloid, Ltd., and also Coroplast, a plastic by Holoplast, Ltd.

Materials

GLASS AND OTHER MATERIALS

IN the past glass was one of the biggest offenders in this country where heat loss was concerned. Large windows although nice and airy during the warm weather allowed the cold to penetrate in winter. With present-day research it is found that by the use of two sheets of glass hermetically sealed with an air space in between the heat loss is reduced considerably. The transmission of a single glass window is 1.00 B.T.U.s per square foot per hour per degree Fahrenheit; by using double glazing with a ¼in space between the two sheets conductivity is reduced to 0.50 B.T.U.s. Glass fibres made up in blanket form are used to advantage between floors, walls and roofs to give greatly improved insulation both for heat and sound. Three-ply glass laminate comprising two outer sheets of glass with glass silk, which is plastic bonded, sandwiched in between is also available for laylights and roof lights. This material when used over artificial lighting produces very fine effects. The incorporation of any of these methods both in the home and industry gives thermal insulation, a password to a good building, cuts down overheads and is a great fuel economizer. Corrugated glass of ¼in plate glass reinforced with wire is now obtainable in this country and is already being used extensively on the Continent. It has a special prismatic ribbing which gives good light value and glare is eliminated in the summer.

* * *

Sheet and plate glass to the value of £5,870,541 was exported by Great Britain in 1952. 72% went to the countries of the Commonwealth, Canada being the biggest buyer, with a bill for more than £1,000,000. Of the Non-Commonwealth countries the United States was our best customer spending £407,444. Sales of British sheet and plate abroad in the first four months of 1953 totalled £2,193,092. Sales to the United States in this period totalling £524,412 are five times as large as for the same period last year and are already greater in value than exports to the United States in the whole of 1952.

[1] Chance Brothers, Ltd. A new pattern in figured rolled building glass—Spotlyte.

[2] Dunlop Special Products, Ltd. Auto-Vibration Mountings in Rubber, for the isolation of heavy machinery.

[3] The Key Engineering Co., Ltd. Key Fibre, well known as an underfloor ducting, now used for drain and rain water pipes [5]. A typical sleeve joint arrangement is shown in [6]

[4] A Philplug Product, Cold Caulking Compound Cord, used here in connecting drainpipes.

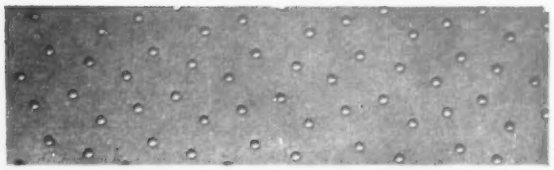
[7] Imperial Chemical Industries, Ltd., have produced this plastic pipe suitable for cold-water runs and waste runs. Called Alkathene Tube, it is a Polythene product.

A reliable pipe to use when the possibility of corrosion has to be taken into account is "Vitreflex" enamelled steel ware. All sorts of pipes and fittings are made in this way, the resultant article being much stronger than cast iron. They are available in 11 colours.

New in the plastics world are Wareite "Handy" panels designed to allow the home carpenter to apply a professional finish.

The Wareite veneers in seven coloured patterns are mounted on 4mm plywood in five stock sizes, cut and trimmed like wood, they can be glued to a smooth surface with ordinary glue.

De la Rue & Co., Ltd., also cater for the small man by selling their Formica laminated plastic veneers unmounted with instructions for using Evo-stik Household Adhesive, a cement made by Evode, Ltd., especially for jobs of this kind.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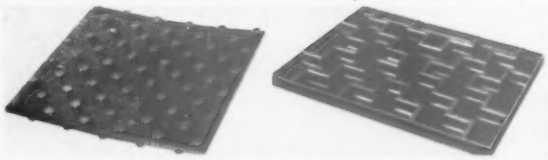
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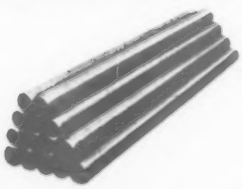
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Materials

CLAY AND OTHER MATERIALS

MANY a Georgian Colonial plantation house in the West Indies and the Southern States of America was built of bricks and Portland stone brought out from Britain as ballast in some eighteenth-century sailing ship on its voyage to fetch sugar or tobacco. Even to-day, such bulky materials as bricks and dressed stone are exported in surprisingly large quantities. Often they are required for a special purpose like the Portland stone sent to America for the United Nations Headquarters, New York, and the headstones which the War Graves Commission are erecting in Commonwealth war cemeteries overseas. But much that is exported is needed for more mundane uses, firebricks, for example, for industrial furnaces in Trinidad or Zanzibar. High quality glazed wall tiles, and also floor tiles, are sent overseas to the four corners of the globe.

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Stones, bricks, concrete blocks, tiles and other masonry-type materials are heavy; they are usually shipped overseas only where a product of first quality is desired, or where local production is undeveloped. To an ever-increasing extent, these bulkier materials are being manufactured overseas with local raw materials. Frequently, British machinery equipment is used for their manufacture: concrete block-making machines, both manual and automatic; brick-making machinery; plant for the manufacture of concrete roofing tiles like that recently set up in Singapore. British Portland cement—ordinary, white and coloured—is used in the manufacture of many of these concrete products. Chlorinated rubber paints have been used to finish the concrete roof tiles; there is likely to be a market also for the specially coloured mineral granules which have been developed by concrete tile-makers in Great Britain. In a number of parts of the world, coral rock and similar soft stones have been used traditionally for building; but rising labour costs have made their extraction and preparation by present primitive methods no longer economic. Simple, mechanical-cutting plant might well redress the balance.

* * *

[1] Concrete blocks made with Leca, a lightweight expanded clay aggregate made by the Cement Marketing Company, Ltd., are being used on many housing schemes as an insulative inner leaf, the K value of Leca is 0.9, the K value of dry Leca concrete with a mix of 9 : 1 and weighing about 50 lbs per cubic foot is approximately 1.3. [2] Leca is produced in three gradings, fine, medium and coarse, used as a lightweight aggregate the size chosen depends upon the ultimate strength required and the size and spacing of any reinforcement. Low thermal conductivity is only one of the advantages offered by this material, it produces concrete with high strength for weight and it has a high resistance to fire, frost, damp and shock. [3] Leca being laid as an insulating screed, 3in medium at the bottom, with a finish of fine screed on top. Leca is also used as a loose infill between joists for ceiling insulation. [4] This picture shows a Leca Insulative screed being placed on a reinforced concrete barrel vault roof. [5] The Broad-Acheson vibrated cellular loadbearing clinker block—3in wide, the range includes widths of 2in, 2½in and 4½in. These blocks, whilst being cellular in formation, have closed tops to take the mortar bed, and the cavities are so placed to facilitate cutting of blocks at 4½in centres. The illlustrated block is upside down to show the cavities. The most important characteristic of these blocks, after the high-thermal insulation value, is the fact that they are for domestic purposes loadbearing, having a compressive strength 840 lb per sq in for the 2in width and 720 for the 4½in width. All blocks are 18in long and approximately 12in high and all conform with B.S.728 and 834. [6] Building blocks can be made with a patterned or textured face with the use of heavily textured rubber sheet. In this example the sheet was placed in the bottom of a mould face upwards, a special mix of coloured concrete was poured in forming a layer 1in deep, the rest of the mould was then topped up with the usual block-making mix. After vibration and setting the mould is removed, and the rubber stripped off leaving a building block with a highly decorative finish. [7] Illustrates similar blocks of varying thickness. Photos from British Rubber Development Board. [8] New tiles, seen at Froy's, Hammersmith, have a modern version of traditional Regency motifs and are available in a variety of colours.

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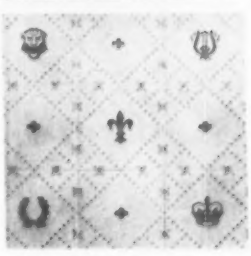

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Fittings

SANITARY FITTINGS

LITTLE progress has been made in this side of the industry in the last 25 years. Baths, basins and W.C.s remain almost the same.

Plastic tubing for cold-water services and chemical application, resistant to a wide range of acids and alkalis have been produced Expanded rubber and plastic ball valves in place of copper.

Improvements in taps where the replacement of worn washers do not necessitate the turning off of the water at the main, making life easier, which is also part of the modern trend.

For rural areas where there is no main drainage life is made more pleasant by the improved type of chemical closet, this works exactly like the ordinary W.C. with a flushing cistern, this being controlled by an electric motor which pumps up chemically sterilized fluid from a settling tank fitted under the floor. The electric motor is wired to suit either mains or battery with a voltage range from 6 to 230.

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The system reduces sewage to an odourless liquid that is run-off into a small soak-away pit. This does away with the old and unpleasant method of having to carry away and empty by hand any container.

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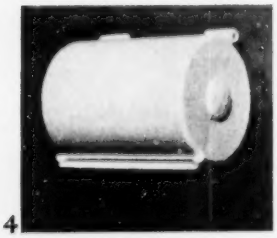
[1] Econa Modern Products, Ltd., commenced the manufacture of tubular copper traps from 18 gauge copper, which is the British Standard thickness, soon after the war ended and thus started what is now the common practice of using fittings which are smooth in bore and adaptable to the circumstances under which they must work.

The illustration shows a "P" trap which is now supplied to Canada in large quantities and at competitive prices. It is made from 20 gauge tubing and incorporates other features, for example, the telescope inlet expected by the Canadians.

Other parts of the Commonwealth, notably Australia, do not agree with Canada or even Britain about the thickness of tube from which to make copper traps and insist that it be at least 16 gauge. Now Econa Modern Products, Ltd., export a considerable number of these very thick and robust special traps. **[2]** A low level suite fitted with the Fordham Jet Flush, the latest Fordham cistern designed for housing authorities. The main feature is its Hi-flow syphon, the main



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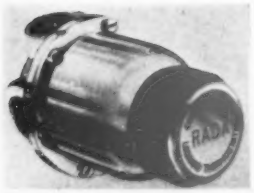

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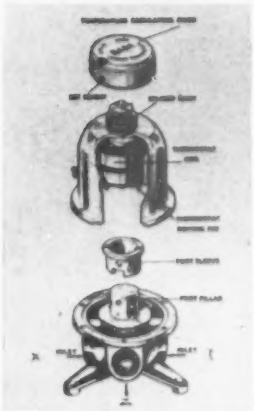
component of which is made of water lubricated Polythene. Exterior finish high gloss black enamel.

[3] Low level suite in vitreous china by Twyfords, Ltd., with 3-gallon cistern, syphonic basin and plastic seat.

[4] An extremely neat toilet roll holder moulded in black or cream Beetle, made by Brooks & Adams, Ltd.

[5] Leonard Thermostatic Hot and Cold Water Mixing Valves and Steam and Water Mixers.

All Leonard Thermostatic Mixing Valves operate on the thermostatic principle by which means automatic control is effected of the temperature of the water delivered and automatic compensation is made for any fluctuations in the supply pressures. The temperature can be varied simply by moving the control knob which incorporates a hidden stop which prevents the maximum temperature, for which the mixer has been set, being exceeded.



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These features ensure that once the mixer has been adjusted for certain pressure conditions and for a certain maximum temperature the thermostatic coil will ensure that this maximum temperature is not exceeded despite any subsequent fluctuations in the supply pressures. In the event of failure of the cold water supply the thermostat immediately shuts off the mixer and so prevents accidental scalding of the user which can occur in such circumstances.

The Method. The thermostatic coil is of bi-metallic construction which causes the free end of the coil to wind and unwind under varying temperature conditions. This movement actuates the port sleeve which covers and uncovers the hot and cold water inlet ports in varying proportions and thus continuously regulates the temperature of blended water delivered.

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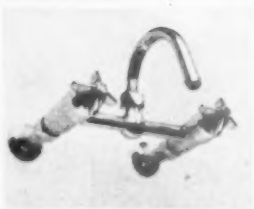

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[6] Shows the construction of the Rada Hot and Cold Water Mixing Valve. This has been developed for single point applications on showers washbasins and other ablution installations. It is of similar construction to the Leonard R type valves, having a bimetallic thermostat in the form of a coil which controls the quantities of hot and cold water entering the mixing chamber in the valve and consequently the temperature of the blended water delivered to the shower or tap. The operation can be followed on the accompanying exploded view of the mixing valve. The hot water enters at X and the cold water at Y (these inlets can be reversed for hot at Y and cold at X if the installation requires it) and pass through two ports in the base into the port pillar. The port sleeve regulates the quantity of water which issues from the ports in the side of the port pillar, the port sleeve being rotated by the

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thermostat which winds and unwinds according to the temperature of the water present in the mixing chamber formed beneath the cover. The blended water then passes out of the mixing valve through the outlet Z. (The outlet can be arranged at top or bottom as required.) The thermostat movement is limited by the set screws which can be adjusted to give the maximum temperature required.

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[7] Shows the Leonard 3, ideal for school showers, washbasins, etc. The No. 3 has a larger capacity and will serve more than one point.

* * *

[8] The "Supamix," ½in Sink Combination Tap. Manufactured to B.S.S. 1010. This fitting includes the "Supatap" quick washer change feature and is precision made from the same high grade materials and finished to the same standard. In addition to a central baffle, which ensures perfect mixing of hot and cold water to required temperatures, the "Supamix" is fitted with floating type jumpers to obviate the possibility of back flow in the event of the failure of either the hot or cold water suppiy to the tap. Made by F. H. Bourner & Co. (Engineers), Ltd.

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[9] Peglers American Type Bath taps, chromium finished with fixings, at 8in and 11in centres.

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[10] Bath Tap Unit by M. Cockburn & Co., Ltd., called the "Slipstream." Made of brass with chromium finish. Divided nozzle to prevent backflow.

* * *

[11] F. H. Bourner & Co.'s Supatap, sink pillar type.

* * *

[12] Shower and bath fittings by Peglers, Ltd., American type in chromium finish. Pipe runs can be seen indicated in the picture.

* * *

[13] Angle Valve, suitable for radiators, towel rails, etc., by Peglers, Ltd., made with three finishes, chromium plated, brass and easy-clean.

* * *

[14] A Vitreous China Bidet, the Riviera Bidet with flushing rim and ascending spray. Combination fitting for directing hot, cold or tepid water to the flushing (box) rim or spray. Fitted with ½in valves and pop-up waste, fittings can also be supplied in Round Design. All exposed brasswork in chromium-plated finish, and it can be had in the following colours: Corallin, Ivoire de Medici, Ming Green, Clair de Lune Blue. Made by Ideal Boilers & Radiators, Ltd.

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[15] This neat shower cabinet, in aluminium, can be supplied with gas or electric heater or it can be connected to an existing system. W. N. Froy.

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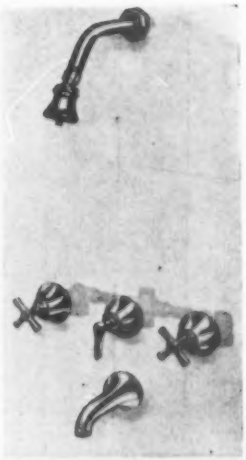
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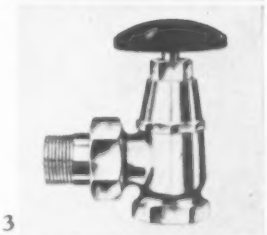
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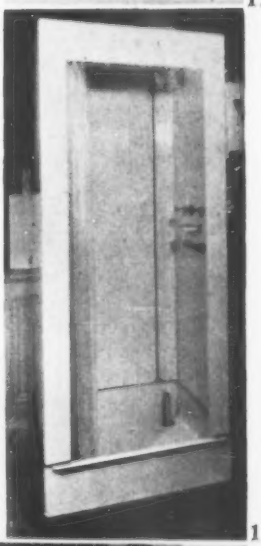
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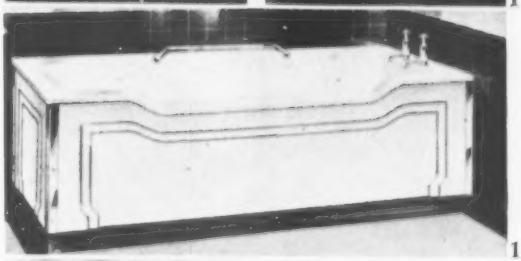
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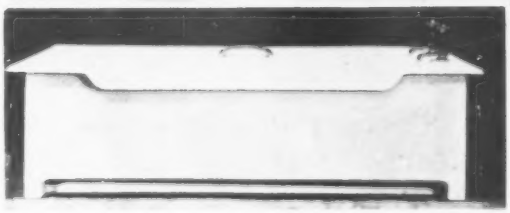
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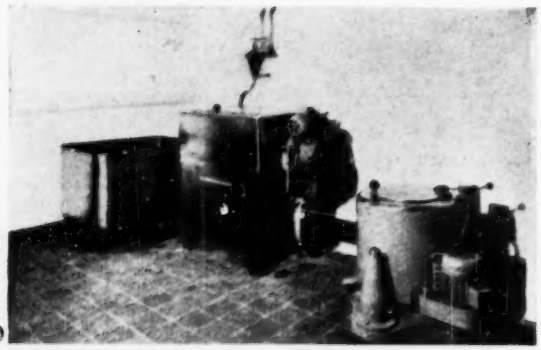

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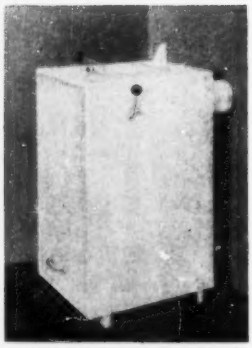

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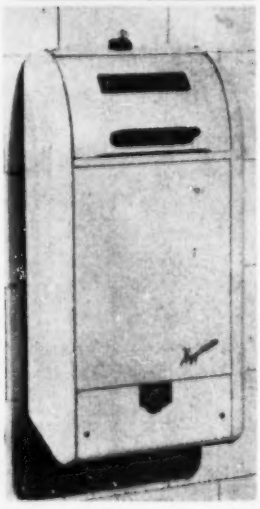

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[16] The "Windsor" Bath. A bath with anti-splash rim all round. Tap end extended to 5¼in. The low stepped front provides for easy entry and exit. Roomy soap and sponge trays are made as part of the bath itself, and are within easy reach of the bather. Shown with cast iron panels with chromium-plated corner angles. Bath mounted on adjustable feet. Trap fittings under floor. "Swan White" or "Lexos" coloured porcelain enamelled panels and inside of bath, by Radiation, Ltd.

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[17] Small, personal, weighing machine, made of cast iron, steel, mazak and aluminium. It has a magnifying glass window, levelling screw, finished in white with black rubber platform. By Geo. Salter & Co., Ltd.

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[18] Lavatory Basin by Shanks & Co., Ltd. Earthenware, five colours available, chromium-plated brass fittings, concealed cast iron brackets.

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[19] "Julian" bath by M. Cockburn & Co., Ltd. Cast iron porcelain enamelled.

* * *

[20] Electrolux Laundry Equipment as laid out at the secondary modern school at Hoddeston. It consists of, left to right, steel laundry truck, washing machine, and hydro-extractor.

* * *

[21] Handy Andy Warm Air Towel, wall model, made by Quiz Electrics, Ltd. Provided with a foot switch. Consumption is 1½ kw.

* * *

[22] Attachment for converting ordinary sink into a washing machine. Called the Carefree Domestic Washer, by Carefree Domestic Appliances, Ltd., it circulates the washing water in which it is stood.

* * *

[23] The Bee-Tee steam operated Hand Dryer by the British Trane Co., Ltd. 3-person model.

* * *

[24] Central Sanitary Incinerator. The success of the G.E.C. sanitary incinerator for personal use prompted the General Electric Co., Ltd., to produce a larger unit for use centrally in buildings having oil-fired boilers or other heating systems that preclude burning of refuse. The external dimensions of the new incinerator are 18in × 20in × 36in high. The rating is 6kw and the incinerator is arranged for direct connection to the mains. A heat resisting lining and thermal insulation are provided. A double charging lid, fitted at the top of the unit measures 8in × 10in and has an internal spring seal. The temperature is controlled by means of a process timer which allows settings of up to one hour; this period being found adequate for all purposes of drying and ignition. A hand-operated rocker hearth is fitted and there is a withdrawable ash drawer at the bottom. A 6in flue outlet is provided at the back of the unit.

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[25] The new English Electric domestic washing machine that heats its own water, pumps it away and runs power wringer, too.

* * *

[26] The "Hygienette" Automatic Electric Toilet and Hospital Incinerator. Enamel finish on aluminium, stainless steel interior. Made by the Hygienette Manufacturing Co.

Fittings

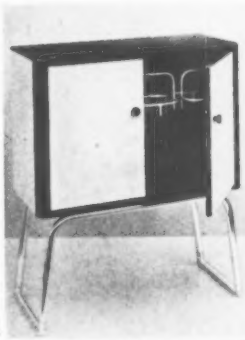
HOSPITAL EQUIPMENT

INCREASING attention is being given to the design of hospital equipment, partly as a result of general trends, and partly because of the necessity for conserving woman- and man-power in the hospital field. Much still remains to be done, by comparison with countries such as Sweden and Canada (who were relatively unaffected by the shortage of steel and other war materials) but notable advances have been made in installing labour saving equipment designed on modern lines. Electrically heated food trolleys, streamlined sterilizing units, bedhead panels with light, wireless and electric point combined, skirting lighting for night use, radio call apparatus between patient and nurse, are all symptomatic of a general trend. There is a definite movement towards standardization of certain equipment, such as bedside lockers, and a notable effort to keep standards of design and construction high. As in most fields, plastics are playing an increasing part in many types of equipment, notably in orthopædic appliances, and in curtaining for screens, etc.

During the next few years we may expect to see a speeding up of the rather slow progress hitherto made, for not only is opinion becoming informed on the subject, but the new experiments being conducted into the design of hospitals will carry the matter of equipment in their train.

* * *

[1] A specimen cupboard made of Formica, holoplast French Beech and resin-bonded plywood, supported on a stand of chromium-plated steel tube. Made by Porter London Products, Ltd., who also make **[2]**, a stainless-steel instrument trolley with a shelf size of 28in × 18in which runs on large rubber-tyred castors.



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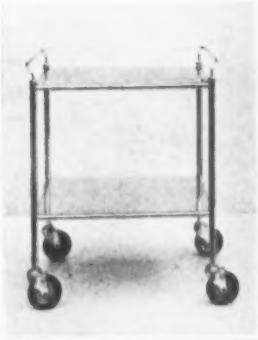

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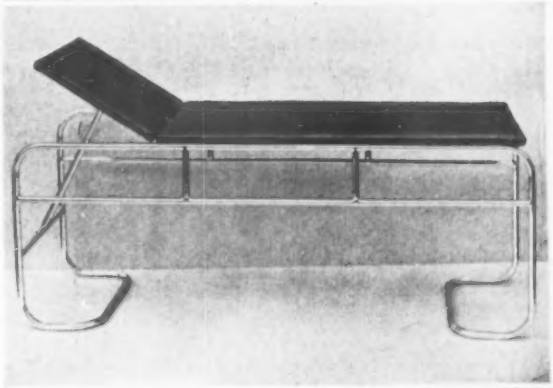
[3] An adjustable examination couch of seamless steel tube and resin-bonded plywood. Made by Porter London Products, Ltd., the steel is chromium plated and the top covered with a plastic "leathercloth" called Vynide.



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[4] A Surgeon's lavatory basin, 20in × 16in, called the "Lotus," is made by Adamsez, Ltd. Shown in white glazed fireclay, it can be made in colours by request. Specially designed for surgeons to wash under running water, there are no cracks or corners to catch and hold dirt. Provided with a standing waste instead of plug and overflow, the basin is cantilevered from the wall by means of a lug made at the back.

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[5] The Biddle Refrigerette by F. H. Biddle, Ltd., is a very compact, silent running, small refrigerator, suggested uses by the makers include: at the bedside of the convalescent, in hospital and nursing homes, surgeries and cabin cruisers—it runs off 12 volts to 270 volts—the cabinet door makes a useful shelf when open, ice is also formed on a shelf at the top of the cabinet.

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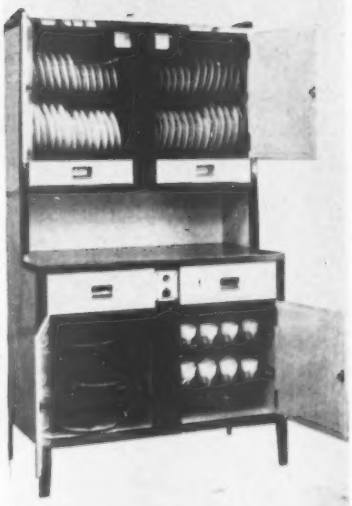

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[6] Electric sterilizer by W. H. Paul, Ltd. This dresser is fitted with T.U.V. tubes which radiate short-wave ultra-violet waves which effectively attack the cell-structure of micro-organisms and is thus highly effective against the germs, mould and fungus spores, wild yeasts and bacteria which cause human infections, spoil food and beverages, and contaminate pharmaceutical products. Such harmful and costly infection can be prevented by Germicidal T.U.V. tubes when used for: (a) Direct radiation for surface sterilization. (b) Indirect upper-air irradiation. (c) Air-conditioning systems and air ducts. Effective doses of germicidal radiation depends on the type of germ, intensity and duration of the radiation, area irradiated and the distance from the tube.

* * *

[7] A casualty dressing bench by Porter Products, Ltd., made of ½in solid linen plastic and ¾in plywood surfaced with Formica veneer.

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[8] Island consulting room designed by G. H. N. Inman, F.R.I.B.A., for the Royal National Ear, Nose and Throat Hospital, London. These clinical tables are designed to afford ample privacy to the patient by means of the curved screen whilst giving the surgeon all the facilities required for the purpose of examination of patients.

* * *

[9] The Lens Light Dual-Purpose, a development of the Lens-Lite for surgical work, by the Electric Depot, Ltd. It is composed of a large magnifying glass with sources of illumination on each side, on an articulated bracket with a 6½in-diam. reflector with a 60-watt lamp on another, both brackets mounted on a 4ft 9in column which is securely placed on a heavy base which runs on castors. The Lens-Lite itself is a magnifying and illuminating head with a magnifying glass of either 8in or 11in focal length: the small electric bulbs are 24-watt or 15-watt pigmy lamps. A further magnifying glass may be attached to double the magnification by using a special attachment.

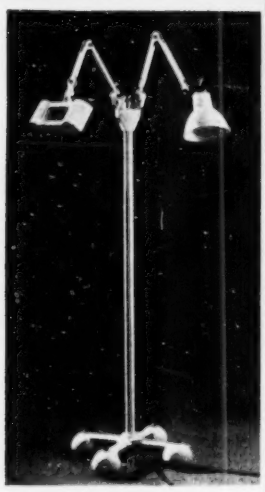
* * *

[10] A dark blind by J. Avery & Co., Ltd., suitable for operating theatres, dark rooms, etc. Known as the "Super C," it has an all-metal casing and an exceptionally narrow lower bottom groove.

* * *

[11] The "Plaistow" Combined General and Orthopædic Operation Table. This table is designed to give an efficient apparatus to the hospital which lacks the accommodation for a special orthopædic table, or, alternatively, to the surgeon who occupies himself both with General and Orthopædic Surgery. The "Plaistow" Combined Table provides such a surgeon with an efficient table for general surgery, incorporating a lateral tilt movement and a kidney bridge if desired, whilst it also provides him with an orthopædic table which gives the greatest accessibility for the reduction of fractures, their control by X-rays, and for their immobilization. It provides for the arrangement of either the lower or upper extremities in any required position for the proper disposition of any part of the body according to the surgeon's needs, whilst the adaptability of the general design especially lends itself to the fact that the particular wish or suggestion of a surgeon can usually be satisfied with relative ease.

The picture shows the table tilted laterally with body rests in position, thus giving easy access to hip joint. Made by the Medical Supply Association, Ltd.



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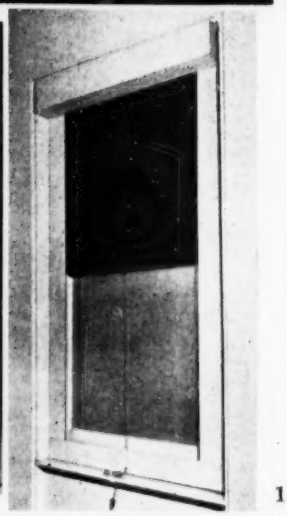

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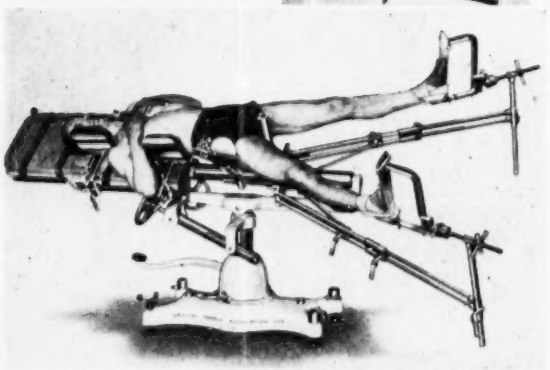

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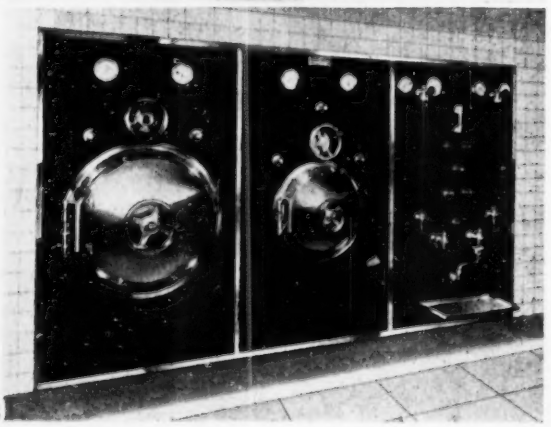
[12] The "Colombo" built-in sterilizing unit—steam heated, as supplied to General Hospital, Colombo, Ceylon. Flush mounted on a panel of polished black bakelite bordered with polished stainless steel. The unit comprises hot and cold water, utensil and combined instrument and glove sterilizers. The utensil and instrument sterilizers are for sterilization by steam at a pressure of 30 lb above atmosphere. Being of the "Vacuum Type" they are also capable of sterilizing dressing if required, whilst the instrument sterilizer is fitted with the glove sterilizing attachment. Cravat rings provide a finish between head rings and panel, whilst the door-locking mechanism is enclosed. Each of the chambers fitted with suitable sliding trays or baskets. The hot- and cold-water sterilizers sterilizing at a pressure of 10 lb above atmosphere, are mounted behind the panels. A "tell-tale" spinner mounted on the panel indicates when water is passing through the cooling coil. Emesay patent safety filling device, enables the filling to be controlled from the panel, without danger of overflowing or contamination of contents by a leaking valve subsequent to sterilization. Thermometers of the gauge type, and pressure gauges, are flush mounted, whilst all controls are brought through flanged sleeves on which their purpose is clearly engraved. Fittings also include water gauges with draining pipes to a central cup. Draw-off valves with swing cup, and dip trays, all handsomely mounted and finished in polished chromium-plate. Sizes: Utensil sterilizer, 18in dia. × 30in deep. Instrument sterilizer: 16 in dia. × 24in deep. Hot-and cold-water sterilizers each 12 galls. capacity. Made by the Medical Supply Association, Ltd.



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Fittings

KITCHEN AND CATERING

AWARENESS of the place of the kitchen in the home, as the workshop of the housewife, and in hotels and industry, as an essential feature of the business, has led to great improvements in design and layout of the premises, as well as of the equipment. The need for daylight, fresh air and even a view from the kitchen is now generally recognized. Stoves and other equipment are grouped for ease of working, convenient to the tables and work benches. Small kitchens have a level work top over built-in fittings. Consideration is now given to finished surfaces. Tiled walls, impervious floors, ceilings painted with anti-condensation paint, all in light and cheerful colours, reduce the work of cleaning to a minimum. Further improvements are always being made in the design of the equipment itself. Research has been carried out to find the best height for domestic and catering equipment, unnecessary cleaning has been eliminated by the introduction of solid top boiling plates for gas and electric stoves, and large-scale equipment design has been studied so that it gives the best service with the least effort from the staff.

Mechanical aids in the kitchen are increasing. Potatoes can be peeled by electricity, puddings can be mixed, vegetables and other ingredients can be cut and sliced, and dishes can be washed. Modern design in equipment and layout has gone a long way towards raising the status of domestic and canteen work both in the home and in industry.

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[1] The pressure cooker is the kitchen's symbol of our age. This model, by L. G. Hawkins & Co., Ltd., has many unique features. There are two types, one with a concave base, to be used with gas cookers, the other with a ground flat bottom for electric stoves. **[2]** The Wastemaster garbage disposal unit, seen at W. N. Froy & Sons, Ltd., and **[3]** the unit in place under a kitchen sink. The "Wastemaster" consists of a compact unit, which is installed in the place of the normal waste and trap in the kitchen sink. The "Wastemaster" takes all normal kitchen waste, such as bones, rinds, scraps, etc., and shreds them to tiny pieces, and flushes them down the drain.

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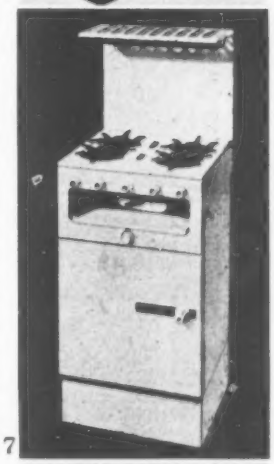

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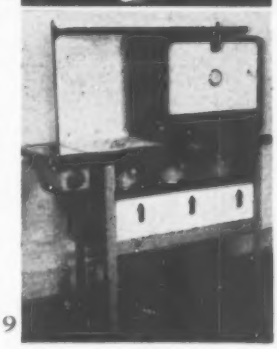

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Even broken pieces of glass will be ground up to minute grains, and flushed away safely. Anything, therefore, can be emptied down the sink waste, the hot or cold tap turned on, and the motor set in action, by a safety switch operated by the foot, and all the waste quickly disappears. This unit provides a tremendous labour-saving asset to any size of household, and also a thoroughly hygienic method of garbage disposal. **[4]** A general utility boiler by L. G. Hawkins & Co., Ltd., it holds three gallons and has a 1,250-watt element with automatic cut-out. With the tap it may be used as a tea-urn, etc.

[5] The Dishmaster Dish-washing Machine by W. N. Froy & Sons, Ltd., The specification and dimensions of the Dishmaster are 24in × 24in × 35¼in high, with a maximum height of 58in when the lid is fully raised. Maximum capacity is a dinner service complete with cutlery and glass for six people with a time cycle of 2 minutes' wash, 1 minute rinse and then dry for a water consumption of 2 gallons, automatically regulated, supplied from the normal domestic hot water or from a storage heater. The operating cost is approximately 1d a day. There is no danger of breaking or chipping, as the glasses and crockery, etc., do not move in the machine. The method of applying the hot water gradually and safely raises the temperature of your china and glassware and will, therefore, not cause damage through over-heating. Pots and pans are simply washed in the Dishmaster, but those with sticky or burned-on food require preliminary attention before being placed in the machine. It is is thoroughly practical for the dishwashing of a small family to be carried out only once a day. The Dishmaster provides a perfectly sanitary receptacle in which the soiled dishes may be accumulated. The Dishmaster cleans itself in the same way as it washes dishes, and therefore requires no attention in this respect. It is not necessary to dry the dishes by hand, as all the crockery, glass and cutlery dries very quickly after finishing the rinse, and by turning on the fan only, this process is considerably accelerated. The "Dishmaster" uses only two gallons of hot water for a complete washing and rinsing, and therefore, will not cause any shortage of water for other uses in the house. The best temperature for water is in excess of 160°F as this ensures hygienically clean dishes, and remove all bits of food and grease film. If your normal domestic hot water supply is likely to fall below this temperature, it is simple to provide a boost by installing a small storage heater which will keep the water at a regulated temperature for whenever you require to use the "Dishmaster."

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[6] A very neat sink unit, sold with either left-hand or right-hand draining board, in sheet steel. Made by Ideal Boilers & Radiators, Ltd., the finish is in white enamel, the unit is 40in wide. **[7]** The Victor cooker, by General Gas Appliances, Ltd., is a new cooker in the moderate price range suitable for the average housewife. Finished in spotless white vitreous enamel with burners and pan supports in black vitreous enamel the cooker is easy to clean and operate. Automatic oven control and safety type gas taps are another feature. The hotplate top is removable in one piece for cleaning. There are four boiling burners and a grill, all with safety type taps. **[8]** The "English Electric" 2009D Cooker. This cooker has a large oven and is fitted with a thermostat which gives precise and reliable temperature control. A simmerstat on the 8in hot plate allows a range of heat control from gentle low simmering to fast boiling. The 6¼in hotplate has a three-heat switch. A large grill chamber is provided designed with rounded corners for easy cleaning, in which plates and dishes may be put for warming. An ample drawer in the base of the cooker gives storage for kitchen utensils or dishes. It can easily be removed so that the flooring under the cooker may be kept clean. Available with either cream or white enamel finish.

[9] An oil-fueled stove by the Florence Stove and Hardware Co., Ltd. No. 53 with a FO2 superhot oven.

[10] When choosing kitchen equipment one has to consider whether the units are to be in wood or metal as both materials have their advantages and disadvantages. Wood is more adaptable, especially when the modernization of an existing kitchen takes place in an older type house, when it may be found that the floor is uneven or the walls are out of true. It is in such cases that wood, as a material, has a far greater flexibility; also when it is necessary to design a special unit to suit individual requirements, wood is the most obvious choice and most suitable material. Noise is practically eliminated when opening and closing the doors of wooden fitments. Repainting units made from wood is also easier. In the case of wooden units, however, purchase from a reliable manufacturer is a must, as the fitment can soon go out of true if the unit is of unseasoned poor quality timber. This kitchen layout at Froys is of steel Sisson equipment with a "Cannons" cooker. It is one of many laid out at Hammersmith, planned by the design staff of W. N. Froy.

[11] This illustration shows the New World Eighty-Four gas cooker in its environment, by Radiation, Ltd. The cooker has four boiling burners, a grill and a large one-burner oven. The ingenious method of construction in which the hotplate is carried on supporting arms gives great strength and rigidity and makes for unusual accessability for what cleaning may be necessary. The special fine-control safety taps have a pre-set low position for foolproof simmering. The height to the hotplate is 36½in, overall 54½in, width 24½in and depth 22in.

[12] Among the latest designs by the General Electricity Co., Ltd., are this group for the kitchen laundry. On the left is the new G.E.C. cabinet model washing machine, a large family wash can be completed within an hour for a consumption of less than ½rd unit of electricity. Its mottled porcelain enamelled tub has a capacity of 11½ gallons, sufficient to wash up to 8lb dry weight of clothes, and is easily emptied by a centrifugal pump driven by the washing motor. The agitator, which is a one-piece moulding, is driven by a ¼ h.p. resiliently mounted electric motor flexibly coupled to the gearing. Drive and gearing are completely enclosed and permanently lubricated. The push-button motor starting switch is fitted with a thermal overload device. The motor has ample reserve of power for both washing and wringing. The wringer, of light but strong construction, is mounted on the machine and can be swung in either direction and operated in six positions. It is easy to fit or remove, and has soft rubber rollers 11¼in wide and 2in diameter. There is a safety guard on both sides of the wringer—the slightest touch on the guard releases pressure between the rollers.

In the centre is the G.E.C. D.C. 114 cooker and on the right the D.M.M. 30 refrigerator which has a capacity of 3 cu ft and is designed to match in dimensions other kitchen units produced to the specifications of the British Standards Institute. It has a shelf area of 6 sq ft with three shelves, one of which is formed by the bottom of the cabinet. These shelves have been planned to give maximum storage with adequate provision for tall bottles. A single ice tray produces 1.4 lb of ice per freeze. The overall dimensions are 36in × 23in × 21⅞in. The refrigerator, which is thermostatically controlled, has an all-steel cabinet, with a white enamel finish and a sealed refrigeration system. There is a five years' guarantee issued with every G.E.C. refrigerator against faulty material and workmanship in the sealed refrigerator system.

[13] This picture shows a kitchen in Williston Court, Johannesburg. Luxury flats in South Africa which have been equipped with D.C. 114 cookers by G.E.C. Sixty-nine were installed at Williston Court and a further 70 have been installed in Beverley Heights, Hyde Circle, Johannesburg.

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[14] The English Electric 76A Refrigerator. The latest trend in modern design of the household refrigerator comes in the "English Electric" 76A Refrigerator where designers have increased the internal storage space to 7.6 cubic feet with 14.6 square feet of shelf area, without increasing the overall dimensions. As well as fully adjustable shelves—which can be fitted to take even a 20lb turkey—there are two large transparent Humi-Drawers and one large Meatkeeper. The Evaporator is fitted with two ice cube trays and a dessert tray big enough to take three or four packets of frozen food. One shelf is fitted so there is headroom to stand the tallest cordial bottles upright.

The temperature Control Dial is mounted at the top of the Refrigerator well out of children's reach. It gives a full range of temperatures from "De-frost" to Coldest." "De-frosting" can be done quickly or slowly overnight, whichever is most convenient. The "English Electric" refrigerator is quiet running, and carries a five-year guarantee. It is finished outside in an attractive primrose enamel which is easy to keep clean by wiping with a damp cloth, and the inside is finished in an acid-resisting white enamel.

[15] The Electrolux LH150 gas refrigerator, shown by the North Thames Gas Board, has a capacity of 1½ cu ft with a shelf area of 3½ sq ft. **[16]** Shows the tabletop surface with a handy drawer immediately below.

[17] The Electrolux LT700 refrigerator operates on either gas or electricity and has an internal volume of 7.1 cu ft with 12.4 sq ft of shelf area. Intended for the larger household, this unit is made of steel finished with acid proof porcelain enamel. The door handle is lockable and the unit is designed to provide dependable refrigeration under every climatic condition.

[18] The Main No. 20 "Century" gas cooker it is in full production and available to both the home and overseas markets. Strongly constructed of stamped steel and finished in high-gloss cream vitreous enamel with black plastic fittings. All taps are of the safety type, they must first be pushed in before they can be turned. Each tap handle has a plated metal strip which indicates at a glance if it is turned on; the strip on the oven tap is in a distinctive colour—red. The hotplate of the "Century" is removable and recessed to accommodate the interchangeable cast-iron pan supports which are finished in special heat-resisting, black vitreous enamel. There are four fast-boiling burners each of which can bring three pints of water to boiling point in under six minutes. The hooded grill is of the quick-heating type and provides a greater than usual toasting area with even heat distribution. The grill pan is in black vitreous enamel and is complete with two-height detachable grid. Below the burners is an enamelled spillage tray with all corners rounded to simplify cleaning.

The oven is heated by a single burner at the rear and accurate temperature control is ensured by the "Mainstat." The oven door, of the drop-down type, has counter-balance springs and in the open position provides a convenient and firm platform for dishes whilst the oven is being loaded or unloaded. A special feature of this oven is that waste heat is emitted from a vent in front of the splashplate. This novel feature of the "Century" directs this heat towards the platerack and so not only serves to warm anything on the platerack, but also prevents discoloration of the kitchen wall.

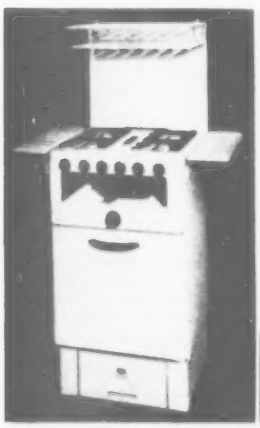
You don't have to reach into the depths of this oven to light it. There's a flash ignition tube which runs from the front of the oven to the burner—simply apply a light to the small hole inside and at the front of the oven, turn on the gas and the burner is lit. Extensions to bring the overall width up to 33¼in are available as an "extra." The Main No. 20B cooker is available for use with liquefied petroleum gases.

[19] The No. 3 Rayburn insulated cooker and water heater, by Allied Ironfounders, Ltd., has two ovens, a roaster and a warmer, and one long hotplate 21½in by 7¼in and heats water sufficient for the usual domestic requirements. This model can be supplied with left-hand or right-hand ovens, top or back flue outlets and iron or copper boilers.

[20] The Sofono Cooker and water heater has a fully open fire for continuous burning, roasting and simmering ovens, a boiler for heating domestic hot water, a large hotplate with the usual hinged insulator behind and also includes back screen, plate rack and towel rail. An unusual feature is the trivet which can be adjusted to any of three positions—first, as a normal trivet for keeping food warm or for keeping a kettle or pot just on the boil, secondly, the trivet can be slid back over the fire for use as an extra boiling plate, and thirdly, it can be adjusted so that it acts as a fire guard.

The Sofono Cooker is very economical on fuel, and, where the kitchen is also a living room, provides a lively open fire for sitting round after the day's work is done. The cooker is finished in cream and black or black and pale green mottle, bright, easily cleaned, vitreous enamel. The cooker is made by the Grangemouth Iron Co., Ltd.

[21] The Yorkseal kitchen stove and domestic water boiler is by Radiation, Ltd., and has the usual two ovens and an extra large hotplate. There is a thermometer on the roasting oven door. The cooker is 36in wide by 35¾in high and 17½in deep. The splash-back and platerack add another 20in to the height.



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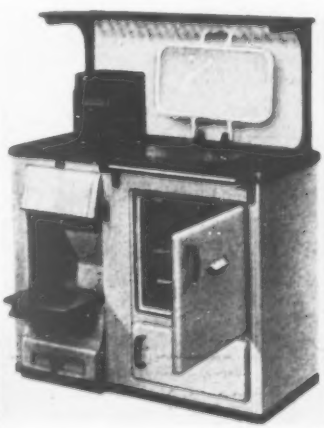

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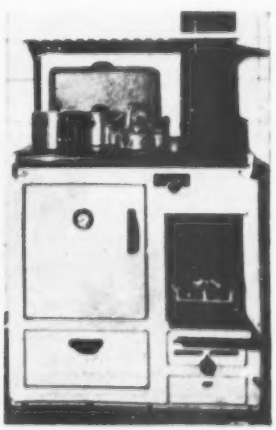

21

Fittings

HEATINGS

THE raising of standards in space heating in industrial buildings has made the public conscious of the benefits to health and comfort obtainable from modern methods of heating.

On the domestic side, recent Government research has confirmed that a single solid-fuel appliance serving both heating and hot-water supply may well be the most economical arrangement, and, indeed, in many housing estates this method is now standard practice.

The modern solid-fuel grate is a revolutionary step in domestic heating, and whilst this undoubtedly gives an increase in heating standards and general efficiency, it is doubtful whether there is a saving in overall fuel consumption if kept alight continuously throughout the winter.

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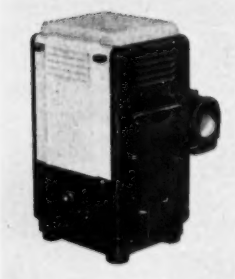

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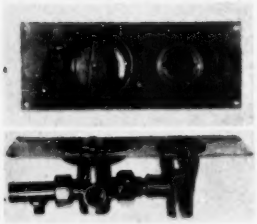

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In larger houses, full central heating and domestic hot-water supply are now considered essential. This heating is usually done with hot water and radiators, or convector-type heaters. With the modern type of solid-fuel boiler, or efficient oil-burning unit, it is still the most economical means of providing such services.

The modern magazine boiler, burning anthracite or coke, needs attention only once a day in winter, or every two or more days in summer. Although some makes of this type of boiler are selective in size and quality of fuel, there is now a Government-sponsored scheme to provide these fuels through the users' merchants.

Oil- and gas-fired central-heating boilers are more attractive where little or no attention is available or is desired, and the saving in labour cost can be offset against the extra cost of the fuel.

* * *

Electric Heating Equipment. The general trend in design of electrical heating appliances to-day is for safety, and all electric fires must now be fitted with protecting guards. Whilst reflector and bar-type fires are still in demand, convector-type heaters are growing in popularity. Panel type radiant heaters with smooth surfaces are particularly suited to small rooms, with tubular heaters with thermostatic control for larger spaces. As an adjunct to the solid fuel domestic boiler, the electric immersion heater for summer hot-water supply provides a simple and clean alternative. Electricity is the most expensive fuel in price per therm, but it has the advantages of cleanliness, convenience, and adaptability to thermostatic control.

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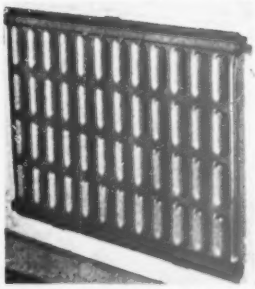

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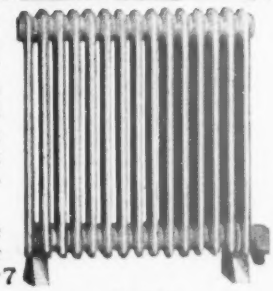

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Following the recent introduction of regulations regarding guards, attention in electric heating is focused particularly on the question of safety. Little, if any, modification of design has been involved in the low-temperature convector type of heater (or of course, in the increasingly popular oil or water-fitted radiators), but all the new reflector fires now making their appearance are fitted with guards of approved design. Several of the fires on the market also incorporate an additional safety feature in the form of a mercury switch which cuts off the supply should the apparatus be knocked over. Incidentally the reflector fire appears largely to have ousted the fire-bar type of fire which a few years ago was equally popular.

[1] A thermal storage heater, by the General Electric Co., designed to use power at non-peak periods and to emit heat for space heating during the day. This is done by the use of concrete [2] and a small, specially designed electric element mounted in a single-sheet steel case. These radiators are designed for use on a time-switch-controlled circuit to draw their power at night only. In some areas a cheap rate is allowed for current consumed during "off periods." The heater weighs 480 lb, size 29in × 25in × 11in, loading 1½ kW.

Oil Fuel Appliances. The steady reduction in price of oil fuel for domestic and industrial heating during the past year or two has given an impetus to the production of burners for the smaller installations. These range from the flueless convertor cabinets to blown or natural draught burners for use in central heating and domestic hot-water boilers.

[3] This newly designed heater by the Florence Stove & Hardware Co., Ltd., is made in two models, one producing 8,500 B.Th.U./hr and the other 10,500. It is 25in high by 18½in × 15½in and one gallon of fuel lasts 18 hours and 12 hours respectively. [4] This combined skirting plate, flex socket and gas cock fitting is supplied by the North Thames Gas Board. The fitting consists of a gas cock, union restrictor lining, flex socket and skirting plate. The cock controls gas to either the flex socket or the ignition burner of a fire. The fitting is available for fixing to either side of a fireplace. (The illustration shows a combined fitting suitable for fixing on the right-

hand side of a fireplace.) The size of the rectangular hole in the skirting board necessary to house the fitting should be 5½in wide by 2½in high. **[5]** One of a new range of fires incorporating guards complying with the new safety regulations. It is finished in silver enamel with clear polished reflector, copper or cream enamel frame with solium reflector. Made by Ferranti, Ltd. **[6]** A pressed-steel water radiator, made by Dimplex, Ltd., in a range from 5 sq ft to 30 sq ft, is guaranteed for 12 months and is produced in a wide variety of colours in a high-gloss stove enamel. **[7]** One of a wide range of oil-filled radiators now on the market with a self-contained heating element, made by Hurseal, Ltd. **[8]** The Bialladin bowl fire, Aladdin Industries, Ltd., burns paraffin under pressure and is intended for use wherever portable radiant heat is required. It burns for 10 hours on 1½ pints of fuel, the body is stove-enamelled brass, the reflector chromum plated and the burner stainless steel. **[9]** A smaller heater by the Florence Stove & Hardware Co., Ltd., with an output of 4,600 B.Th.U./hr burning for 30 hours to a gallon of fuel oil.

[10] Imitation coal and log fires still have a strong appeal. This "Magicoal Homebery" model has been introduced at a remarkably low price for this type of apparatus, and is made by Berry's Electric, Ltd. **[11]** In the new "Raydair" low-temperature radiator rearward radiation has been eliminated and all the heat from both front and back surfaces of the heating element is carried forward into the room. It is equipped with a thermostat and pilot light. By Berry's Electric, Ltd.

[12] New inset version of the Ferranti "Safera" fires, one of the original "safety" fires. By Ferranti, Ltd. **[13]** The "Memray" swivel reflector type, 1 kW fire, by the Midland Electric Manufacturing Co., Ltd., who also make a flat bar type in 1-, fig. **[14]**, and 2-kW loadings. These fires have a patent handle round which the flex can be neatly wound when not in use.

Gas-fired Appliances. Although gas as a fuel for central systems of space heating and hot-water supply is losing favour owing to the continued rise in price of gas, the improvements in design and operation of direct-type convector heaters and fan-type air heaters fired with gas enable domestic and industrial heating to be carried out for a cheaper initial outlay than the orthodox central systems. Also, the summer use of gas for domestic and works hot-water supply still has an attraction, due to the simplicity and cleanliness in use, as against solid fuel.

[15] An attractive new portable gas fire with a deep chromium-plated reflector and unbreakable chrome radiant. Gas consumption is 10 cu ft an hour. The makers are R. & A. G. Crossland, Ltd.

[16] The Homeguard 2 kW electric fire which automatically cuts off the current if the fire is lifted or overturned, made by Belling & Co., Ltd. The chromium reflector is adjustable to any angle and the fire has a carrying handle.

Solid Fuel Appliances. With the increasing cost of solid fuel in the post-war period, the need for greater efficiency has been met by the manufacturers, in conjunction with the Coal Utilization Council and the Ministry of Fuel and Power, in the design, manufacture and testing of all types of grates, stoves, cookers and domestic boilers.

[17] The number 25 Lowburn fire, 2in lower than the average, has an extension in front that, when up **[17]** allows the fire to hold sufficient fuel for 10 hours burning and, when lowered **[18]**, allows maximum radiation from the fire. Fitted with gas ignition connections, this fire is designed for a 16in fireplace. Allied Ironfounders, Ltd. **[19]** The "Yorkray" heating stove by Radiation, Ltd., is openable, the two doors slide into recesses at each side and a front bar drops down to form a hob. It is designed for continuous burning with all types of solid fuel and incorporates the most up-to-date methods of both radiating heat and convecting warm air to the room. The Yorkray can be supplied with or without a boiler and finished in a variety of colours in porcelain enamel.

[20] Belling & Co., Ltd., make this "Handy Heater," used for heating airing cupboards or small rooms, garages, etc.—also useful for incubation purposes. Finished in bronze, the loading is 250 watts. **[21]** The General Electric Co., Ltd., make an airing cupboard heater, one of these heaters, of which there are two, is loaded at 120 watts and provides a simple, cheap and effective means of converting any ordinary cupboard having slatted shelves into an airing cupboard. The other, loaded at 60 watts, provides an equally simple means of preventing the ravages of damp and mildew in wardrobes or in food stores containing cereals, sugar, packeted foodstuffs and dry goods. Both heaters are simple to fix; they can be screwed either to the base of the cupboard or the cupboard wall. Each heater is provided with a guard to prevent clothes or other material from scorching. The heaters and guards are painted with a matt dark brown, heat-resistant paint. The 60-watt heater is 1ft in length and the 120-watt heater is 2ft in length.

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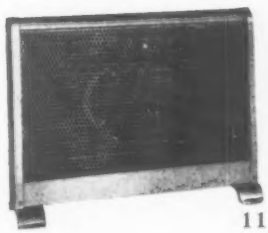
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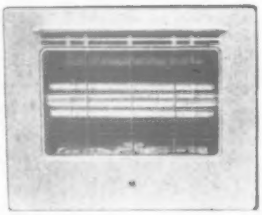
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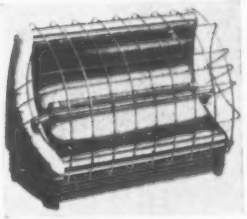
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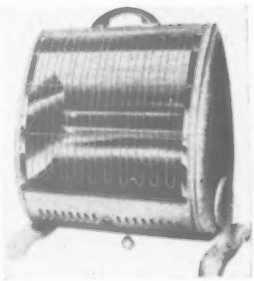
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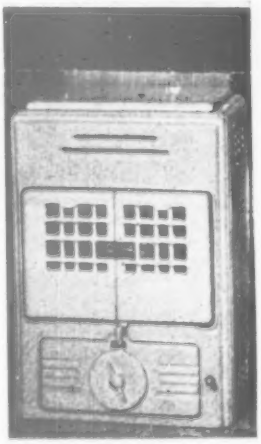
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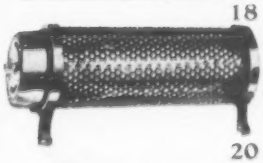
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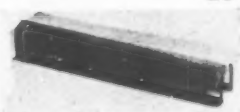
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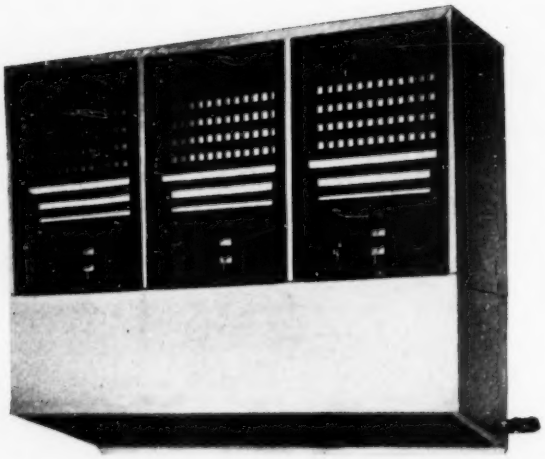

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[22] The "Halcyon" industrial space heater, Models 3L and 3LX, is one of a large range of heaters made by William Sugg & Co., Ltd. The casing is neat and simple in design, attractively finished in grey metallic synthetic enamel, the overall dimensions being: height 29½in, width 35¾in, depth 11½in, weight 135 lb. Model 3L is for flued operation, giving 38,400 B.Th.U./hr output and includes an integral flue baffler Model 3LX, exactly similar in other respects, is for flueless operation, giving 48,600 B.Th.U./hr output. Electricity consumption (both models) 180 watts (A.C. only). This model fans warm air through the workshop or space to be heated, maintaining almost the same temperature from floor to ceiling. For mounting on walls or stanchions not less than 6ft from the floor.

* * *

[23] An oil-filled electric radiator by Dimplex, Ltd., incorporating a flameproof head with ¾in conduit entry. Officially approved under Buxton certificate No. 3072 for installation in gaseous atmospheres, groups 2 and 3. For wall fitting only.

* * *

[24] A corner type warm air circulator by Belling & Co., Ltd. and **[25]** the ordinary wall type, both designed for mounting on walls, the corner type is 750-watt loading, the plain type either 750 watts or 1,500.

* * *

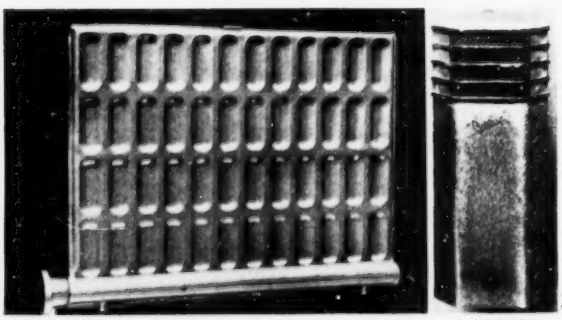
[26] The new "Coronation" model oil-filled radiator, measuring 48¼in long by 22½in high (including feet) is particularly suitable for installation under low windows. Made by Dimplex, Ltd., this new model has 1½ kW loading, the oil filling is sealed and the elements are completely enclosed. The temperature is thermostatically controlled. Made from ½ kW to 2 kW in six sizes.

* * *

[27] The B.N.E. P.20 convector is the latest convector unit produced by British National Electrics, Ltd., the Domestic Appliances Section of Johnson & Phillips, Ltd. The general appearance is pleasing, with the black crackle finish and anodized flame gold inlet and outlet louvres. There are two models available, model P.20T having a numerically graduated thermostat ensuring sensitive control of air temperature over a range 60°F to 130°F, and model P.20S, which is of similar design but has a switch fitted instead of the thermostat to control 1 kW of the total loading. This latter model is also fitted with additional terminals which enable it to be connected to an independent thermostat should this ever be desired. For this purpose a matching transformer could be supplied. The P.20 is robustly constructed from the best quality materials available, and accessibility to the wiring elements and thermostat control is facilitated by the incorporation of a removable back panel. Much care has been taken in the design of the convector to make it one of the safest space heating appliances available. Weight has been concentrated at the base to offset the convector being toppled over easily; the 6ft lengh of flexible cable which is supplied is securely anchored to a reliable terminal block, and a safety mesh has been fitted behind the louvres to stop children from inserting their fingers, and to prevent scraps of paper and other foreign bodies from falling on to the elements. The design is such that no accessible part of the unit reaches a dangerously high temperature. Dimensions: 24½in high by 19⅜in wide by 8½in deep. Loading: 2 kW, 200-220 and 230-250 volts A.C., suitable for D.C. if not thermostatically controlled.

* * *

[28] The Aladdin convector heater is intended for continuous burning where the size of the room to be heated is too large for an Aladdin oil radiator or, alternatively, for daytime burning in a room which does not require the heat output of a Blue Flame heater. It is entirely odourless and burns without attention for over 24 hours. Blending with any interior decoration it is essentially modern in design and an ingenious patented reflector system gives a unique impression of visual warmth. The Aladdin 2in burner is constructed mainly of brass and the reflector of highly polished aluminium. The steel body of the heater is finished in cream stove enamel. The tank is constructed of heavy-gauge steel which has been especially treated internally to prevent rust and has been finished in cream stove enamel externally. Size: height 31in, width 16¾in, depth 9½in. Heat output ranges from 4,000-6,000 B.Th.U./hr for a fuel consumption of 40 hr per gall at 4,000 B.Th.U. or 27 hr per gall at 6,000 B.Th.U.



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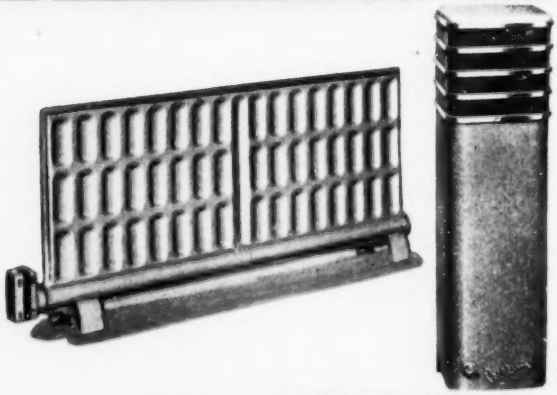

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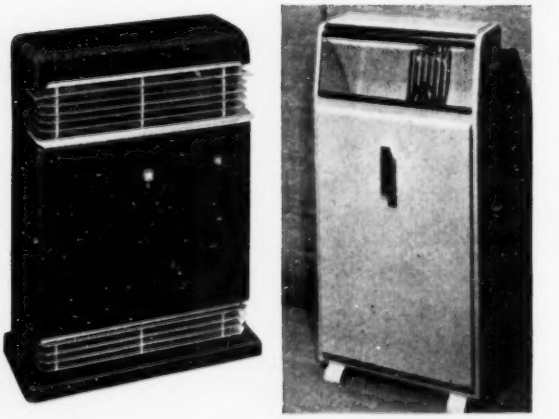

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INSULATION

and no more?

Not such a very common requirement, all by itself. As a rule, there are other important factors to be borne in mind; and with "Asbestolux" it is often possible to cover them completely, as well as the need for thermal insulation. "Asbestolux" is incombustible, for example, and never deteriorates. It is highly resistant to acids, steam, humidity, rot, fungi and insects. It is light and exceptionally easy to work; it can be nailed without cracking; it stands up well to handling; and it will not swell or twist. This combination of properties springs, partly, from the type of asbestos used — the uniquely long-fibred Amosite, from the Cape Asbestos Co. Ltd's own mines — which gives it an open cellular structure otherwise impossible to achieve. Another reason is the special high-pressure steam-curing process to which it is subjected. "Asbestolux" is, in fact, worth knowing all about. May we send you details?

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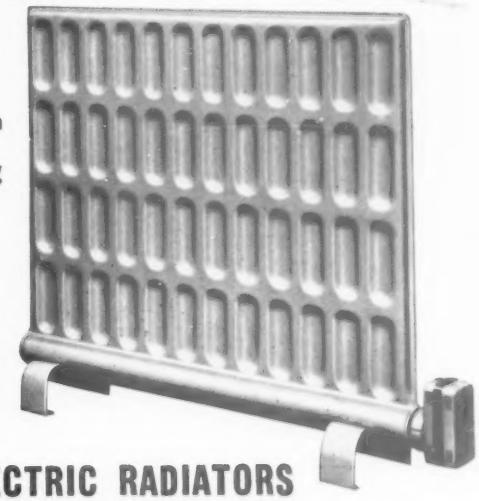
Whether it is for an entirely new building or a conversion, specify Dimplex Radiators



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The oil-filled radiators for *plug-in central heating* . . . thermostatically controlled, transportable, fireproof. They operate from any *power* point and have no exposed elements. The oil is hermetically sealed in; no replenishing, no fumes. Colours as for water models. Range incorporates Panel type models: ½kW., ¾kW., 1kW., 1½kW. and 2kW. Column type models: 1½kW. and 2kW. In all normal voltages. Mountings: Feet, castor wheels or wall brackets.

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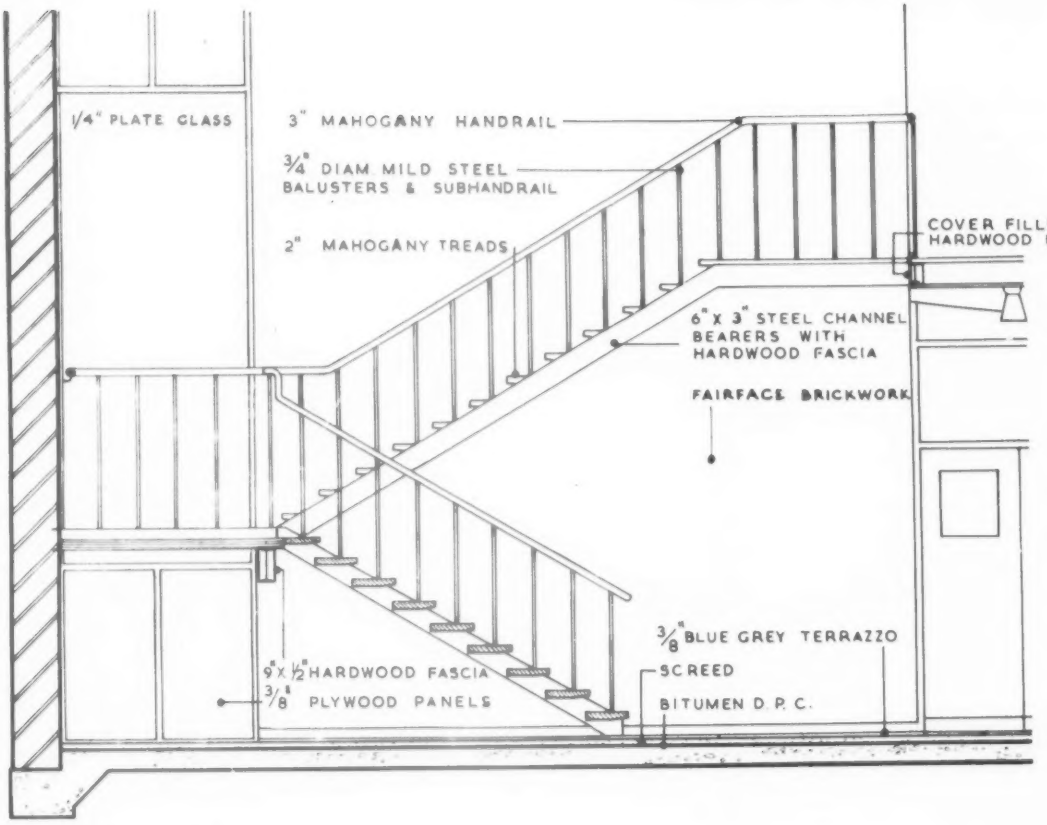

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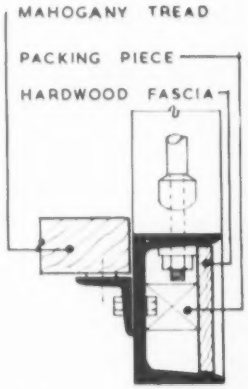
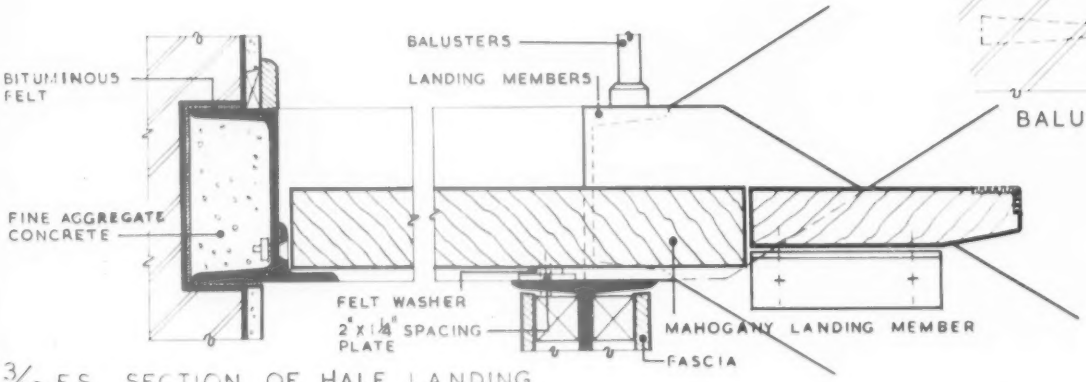


3/16 F.S. CROSS SECTION OF BEARER

BALUSTRADE FIXING



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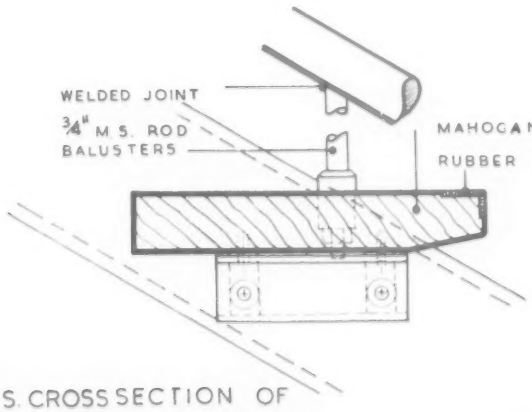
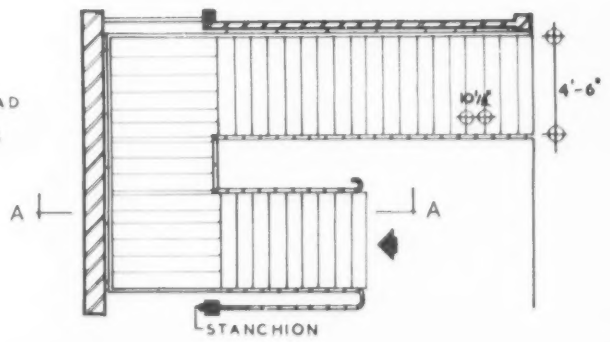


3/16 F.S. CROSS SECTION OF TREAD & BALUSTRADE



KEY PLAN

STAIRS, RICKMANSWORTH POLICE STATION

ARCHITECT: C. H. ASLIN

Fittings

LIGHTING FITTINGS 4/3

WHILE the high quality and low running cost of fluorescent lighting render it increasingly popular there is still a steady demand for tungsten fittings especially where a concentration of light in a limited area is required. A blending of fluorescent and tungsten lighting is a compromise which meets certain requirements.

The main trend in fluorescent lighting is perhaps the increasing use of "Perspex" in the design of the fittings. Considerable progress has been made with the use of cold cathode lighting, one of the most recent developments being in regard to street lighting.

* * *

[1] The British Thomson-Houston Co., Ltd., make this fluorescent reflector fitting, series F1150, for either one or two 80-watt, 5ft fluorescent lamps. Made of sheet steel, bonderized and enamelled white, all holes in the metal formwork are rubber bushed to prevent chafing of wires, the control gear is mounted on a tray that is simply removed after loosening two nuts.

* * *

[2] The Holophane industrial translucent twin-blended lighting unit which embodies both mercury discharge and filament light sources in the one unit and is designed for high mounting in factories and similar situations, where high standards of illumination, good colour quality and economy in operation are particularly desirable. By embodying the mercury and filament light sources in the one composite unit not only has a colour quality approaching daylight been obtained but disconcerting two-colour shadows have been largely eliminated. In these twin-lighting units, the individual light distributions of the mercury and filament reflectors are carefully matched, this factor being important in obtaining good colour uniformity in the blended light.

* * *

[3] This "Ediswan" cold-cathode lighting reflector housing either three or four standard 9ft 6in tubes is made by the Edison Swan Electric Co., Ltd.

* * *

[4] The Mazda system of blended tungsten and horizontally operated mercury lighting for high bays uses fittings either with one or two mercury lamps with a tungsten lamp. The most common arrangement is shown in the illustration, the two mercury vapour lamps are controlled by a choke and capacitor each, in the mounting, the tungsten lamp in the centre is a thousand watts and any variation of requirements may be catered for and assembled by the manufacturers, wired ready for connection to the power supply. Made by The British Thomson-Houston Co., Ltd.

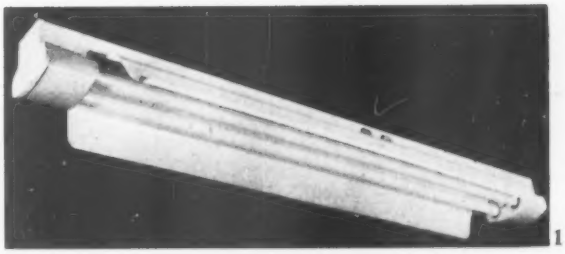
* * *

[5] For interior use, the Mazda dustproof and flameproof fluorescent fittings have proved extremely successful overseas. They provide safe and efficient illumination in all areas affected by gaseous vapours or dust—such as oil refineries and cotton mills. Their design is such that they can be installed in almost any location (the flameproof fitting can even be employed as five units on a rotating frame for outdoor lighting), and they are easily maintained.

* * *

[6] A cold-cathode lighting reflector employing three or four standard-type 9ft 6in cold-cathode fluorescent tubes, made by the Edison Swan Electric Co., Ltd., who will also provide mounting brackets for angular adjustment and anti-vibration mountings in both normal and heavy-duty grades.

Other fittings of interest to the building industry at home and overseas, by B.T.H., are **[7]** the "Monolux," a new bare-lamp fluorescent unit mainly for use in offices, with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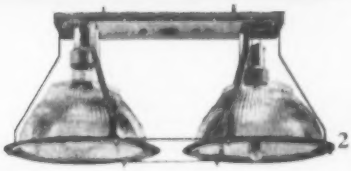
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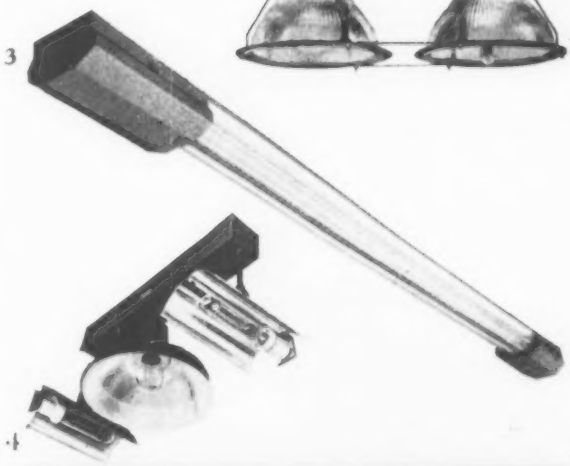
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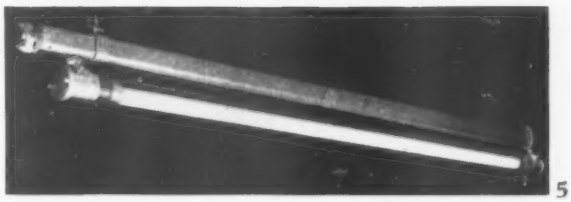
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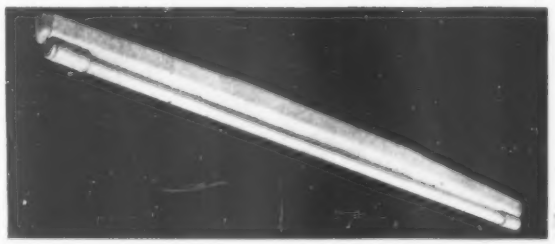
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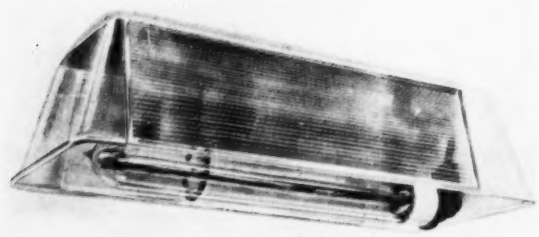

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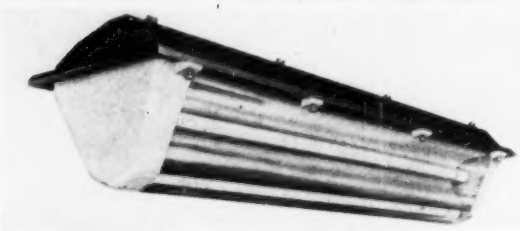

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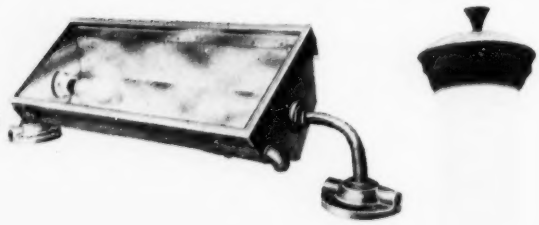

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switch-start lamp auxiliary gear. An "instant-start" model is also available; **[8]** a horizontal sodium open street-lighting lantern for groups A and B roads, made of Perspex with either side or top entry (these lanterns contain either one 140-watt or one 85-watt sodium lamp); and **[9]** the Mazda fluorescent lantern for group A roads with three or two 80-watt, 5ft lamps, constructed on a ribbed-steel frame with a corrosion-resistant aluminium canopy and Perspex cover bowl.

* * *

[10] Crompton Parkinson, Ltd., make this outdoor weatherproof trough floodlight. Made of heavy-gauge sheet steel with a heat-resistant glass front in either one- or two-lamp models.

* * *

[11] The "Mazda" Sapphire mercury reflector lantern for group A roads, by B.T.H., Ltd. Available either with or without magnetic arc control, made of aluminium with heat-resistant glass, the unit is weatherproof and complies with B.S.1788.

* * *

[12] A post-top lantern, by the General Electric Co., Ltd., which houses five 8ft U-shaped cold-cathode tubes.

* * *

[13] A general-purpose flood lantern fitted with a bright anodized interior reflector and focusing device. Constructed of heavy-gauge steel specially treated to resist corrosion and a heat-resisting blown glass front, supplied complete with a cast-iron base plate. Made by Crompton Parkinson, Ltd.

* * *

[14] The Benjamin Deep Bowl Dispersive Reflector is manufactured specially to meet the regulations applying in Australia. It is made from heavy-gauge steel and finished with vitreous enamel inside and out. The fitting can be made dust- and damp-proof by fitting a "Visor" cover which can be used with clear, opal or daylight glass.

* * *

[15] The new Benjamin Enclosed Area Floodlight, designed to meet the demand for a dustproof fitting suitable for either pole or wall mounting. The fitting is supplied with two U-bolts for 2in outside diameter poles. The aluminium alloy bracket is so designed to permit fixing to horizontal or vertical surfaces. The Duoflux type aluminium-alloy die-cast canopy and hood are used, enabling adjustment to be made in the tilt of the reflector according to the area to be illuminated.

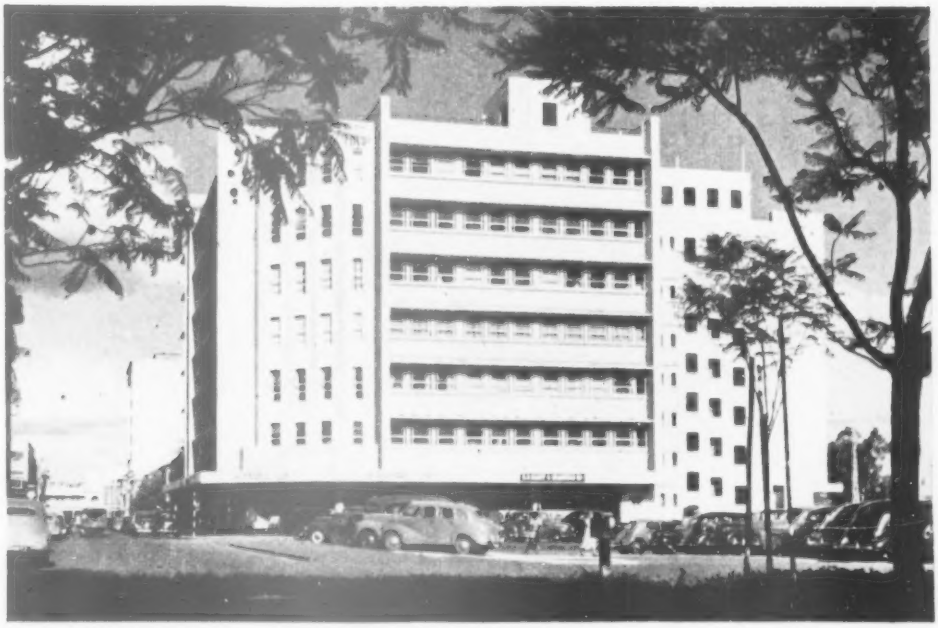
* * *

[16] A new Mazda lamp, the 75-watt Reflector Spotlight by B.T.H., Ltd. This lamp is probably the first standard light source of its kind to fit an ordinary domestic lamp-holder. It has many applications in the home, in industry and in shops and stores. Each lamp has an internal parabolic-type reflector and satin-frosted crown. The result is a powerful beam of controlled light which is extremely useful for close work. Although the lamp is fitted in the standard version with a bayonet cap it may be obtained with an E.S. (screw) cap.

* * *

A useful consulting lighting service is provided by G.V.D. Illuminations, who also design and make fittings for particular purposes.

CRITTALL WINDOWS



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An installation of Crittall purpose-made Universal Casements.

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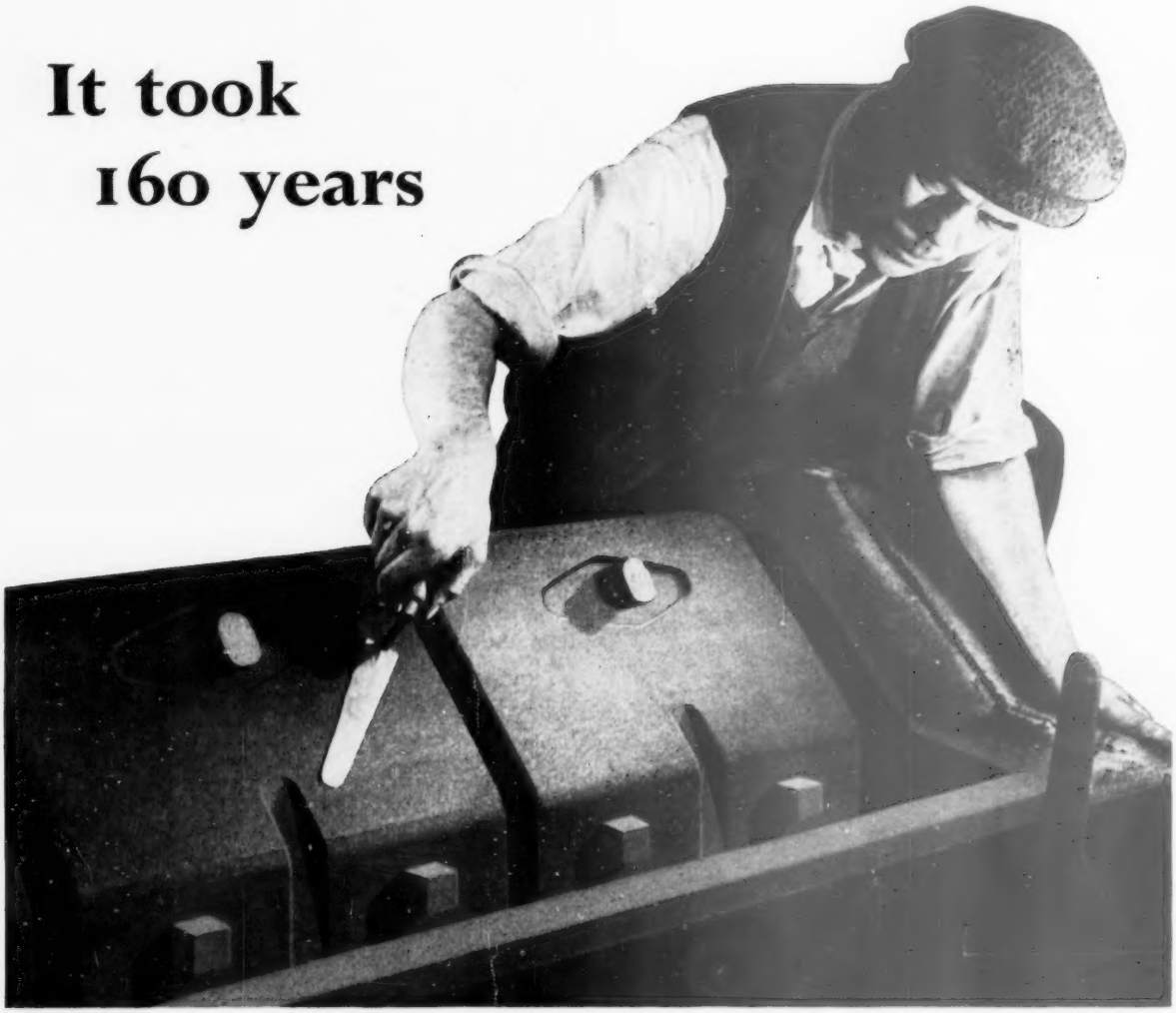

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HEAVY CONSTRUCTIONAL ENGINEERING, EXCAVATORS, INDUSTRIAL AND DOMESTIC HEATING APPLIANCES, FUEL ECONOMISERS, IZAL AND OTHER CHEMICAL PRODUCTS.

Services

VENTILATION

IN work rooms and offices present-day standards aim to provide sufficient clean air, at the correct temperature, for respiration and comfort, and to remove vitiated air, odours, dust and gases that may be produced in industrial processes.

Natural ventilation wherever possible is, of course, the simplest and cheapest method, and a number of modern ventilators of pleasing and effective design have been developed for this purpose.

There are many instances, however, where mechanical ventilation, using motor driven fans, with or without ducting, is required to deal with the problem. Such systems usually incorporate air filters, heaters and sometimes air washers, depending on local conditions.

The extraction of odours, fumes, dusts and the like by mechanical means is a specialist problem, as many factors have to be taken into account, such as the nature of the material to be removed, whether it is toxic, explosive, harmful to health, and so on.

Simple systems for air, dust and smoke removal, using window fitting fans are often adequate for small duties, if positive and carefully placed inlets are provided, to work in conjunction with the extractors.

An improvement in summer comfort conditions may be effected by the use of desk fans in offices, and similar but larger, "man-cooler" fans in workshops. In small rooms subject to excessive solar heat or high occupancy, air conditioners may be of use, and a number of these incorporating their own refrigerating units are now available.

* * *

[1] The F. H. Biddle "100" self-contained air-conditioning unit has an inlet at one end, an outlet at the top, and a 2in-wide spigot at the rear of the chassis for connection to a short length of duct connected to the outside air. A ½in drain connection to carry away condensed moisture is provided at the rear. The unit will remove 12,000 B.Th.U./hr with the outside air at 95° F and with air to evaporator at 80° F, 50 per cent R.H. in the room.

[2] This photo shows without its casing, the room air cooler, suspended model, by F. H. Biddle, Ltd. An important characteristic is its quiet operation. Suitable for bedrooms, wards, etc. It will operate on chilled ware, brine or D.E. refrigerants.

[3] An all-purpose all-weather ventilator by Colt Ventilation Co., called the Wall Inflow Unit which will bring into a building up to 200,000 cu ft of fresh air per hour. The unit is reversible and will also run closed off to the outside air recirculating the warmed air within a building.

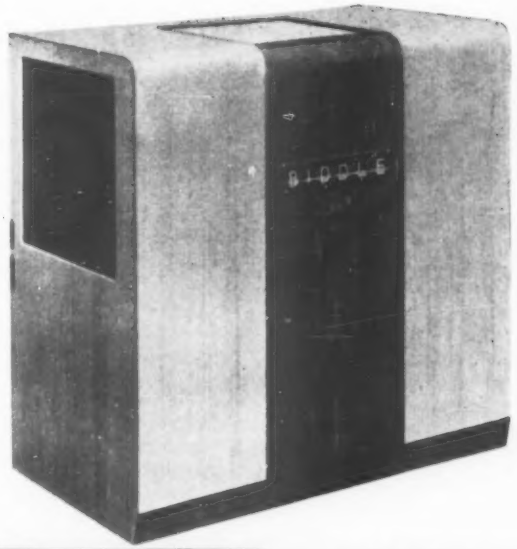
[4] The new reversible Ventaxia made in four sizes, 6in, 7½in, 9in and 12in, is controlled by **[5]** a five-speed switch which includes an auto-transformer.

[6] The new Webley 12in oscillating fan is quiet in operation, varies the direction of air stream by 180°. It is light, manufactured of aluminium alloy castings, and is claimed to be capable of moving 1,200 cubic feet of air per minute. Made to B.S. 380-1930.

[7] The Copperad, Ltd., Fan Cooler is a new product manufactured in three different sizes which will give heat extraction rates from 13,000 B.Th.U./hr to 27,000 when supplied with chilled water at 35° F with the room temperature at 90° F.

Greenwood's and Airvac Ventilating Co., Ltd., make a very interesting ventilator for use with either circular or square glass domes. Hit-and-miss shutters are operated by a new and simplified form of toggle which can be remotely controlled at floor level by means of a long arm.

Aarcon, Ltd., make a self-contained room air-conditioner and dehumidifier rated at 6,100 B.Th.U./hr extraction. Air can be changed by 100 cu ft per minute.



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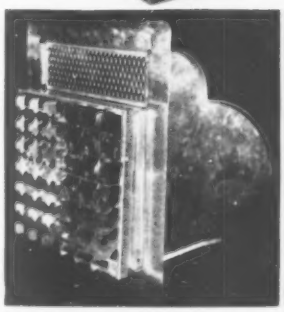
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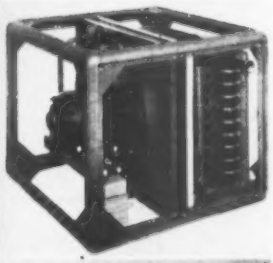
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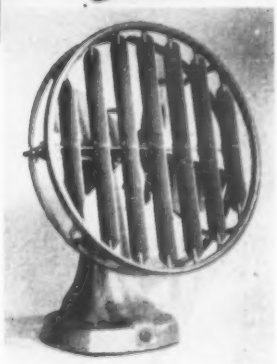
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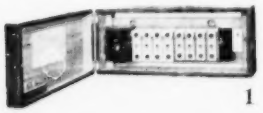
Services

ELECTRICAL INSTALLATION

IMPROVED appearance, coupled with a greater degree of compactness, is perhaps the most noticeable trend in electrical installation equipment design. Standardization of the general design of the cases of the various components which go to make up a switchboard assembly has contributed largely to this highly desirable feature. Also the adoption of smooth and more graceful exterior contours not only makes a more satisfactory appeal to the eye but has the additional and more practical advantage of eliminating dust traps. Far from interfering with the ease of installation and maintenance the more compact designs invariably give the electrical contractor more room to manœuvre. Still further attention has been paid to safety both in installation and operation.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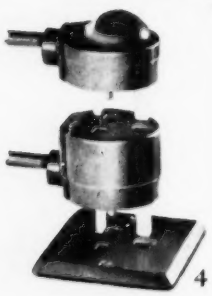
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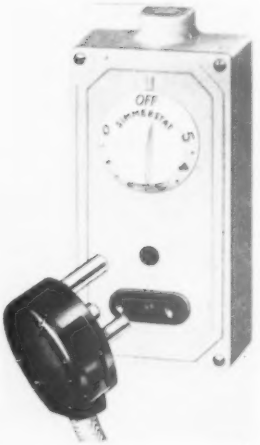
Another tendency which is likely to facilitate installation work considerably is the use of a somewhat lighter form of construction for certain types of equipment such as fuseboards. This has been brought about without sacrificing robustness to any extent and it has the further merit of lowering the price.

Besides its improved appearance, unit construction is greatly helping extension work. Greater interchangeability of rewireable and cartridge fuses is another feature which is much to be welcomed. With the growing adoption of the 13A universal fused plug and socket further accessories are coming on the market, including such items as "Simmerstat" controlled socket outlets. Many other units designed to give greater ease of installation and control are also now available.

* * *

[1] The Memera composite unit, woodcased, offers an extremely compact, low cost arrangement with MEM-AC 60-amp D.P. main switch and 4-, 6- or 8-fuse ways and neutral bar. Internal connections between main switch and busbars are provided. Cases are drilled and tapped for earthing bars which can be supplied at extra cost. The metalclad units, **[2]** are finished cream stove enamel, and have knockouts for conduit and provision for back entry, prices vary depending on the number and variety of fuseways, the woodencased units are slightly cheaper. Manufacturers are Midland Electric Manufacturers Co., Ltd. **[3]** Circuit Breakers and Earth Leakage Trips have definitely come to stay and are to-day widely used in Industry, Mining, Agriculture, Motor Traction, on the Railways and for Domestic Purposes. Among the latest types are the Chilton Electric Vehicle Circuit Breaker, the Circuit Breaker for Traction Use now being tested out on the Gas Turbine Diesel Engines of the British Railways (Western Region) and the new Chilton Mains Distribution Unit for Domestic Users, the new Chilton Combined Distribution Unit besides providing the amenities of a Switch-Fuse and Distribution Board, incorporates Earth Leakage, Overload and Short Circuit Protection. There are now three Types, A, B and C available, for small and large domestic installations and for mains distribution. **[4]** Used in place of the normal multi-way adaptor this Fuse and Shuttered Plug Adaptor for 13-amp Socket Outlets, combines the operations of plug and adaptor; therefore, no additional plug is necessary. The plug adaptor is wired to one of the appliances in place of a plug; the second appliance, or a further adaptor, can then be fed from the adaptor outlet. The Plug Adaptor fits any standard outlet made to B.S. 1363. It incorporates the same simple re-fusing device as is used in the standard Ediswan Clix B.S. 1363 Fused Plug, and the adaptor outlet is shuttered. The re-fusing operation takes only 15 seconds and can be done without dismantling the plug. Made by the Edison Swan Electric Co., Ltd. **[5]** Three of the Simplex Electric Co., Ltd.'s switches, left to right, the new range of Simplex Lundberg 5-amp switches, which are marketed under the brand name "Miniac," are of unique and compact design; long service performance is guaranteed. The "Miniac" range includes 5-amp surface, flush, plaster depth and ceiling switches, bell-push and push-push switches, plaster depth bell-push switches, 15-amp surface (30-amp D.P. surface switch also available) and flush switches, and 5-, 13- and 15-amp switch sockets. The switch mechanism is totally enclosed to exclude dust and moisture, and the range fully complies with B.S. 1299 (Part I). The "Miniac" switch has a positive action and is silent in operation as the dolly movement is fully controlled both in the "off" and "on" positions. All "live" components are mounted on to non-track mouldings of urea formaldehyde. It is interesting to note that "Miniac" single-pole and two-way flush switches can be mounted at 1in centres thus making it possible to have two switches in the space normally occupied by one of the usual standard quick-make, quick-break type. An adaptor plate is available to convert existing standard switch fittings. Also, two switches can be mounted in a standard B.S. 1299 box, but it should be noted that if one of the two switches is a two-way switch it should be mounted as the left-hand unit of the pair.



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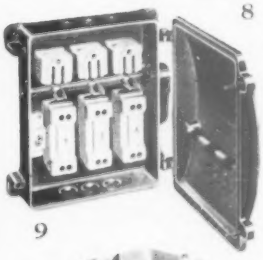
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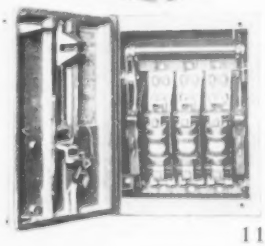
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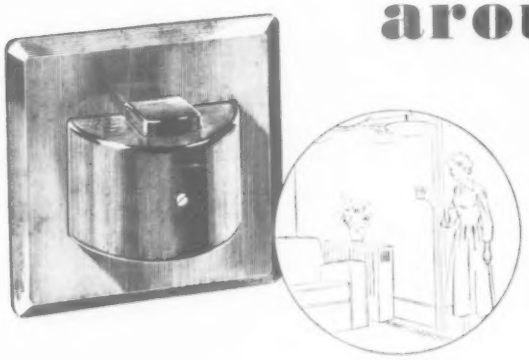
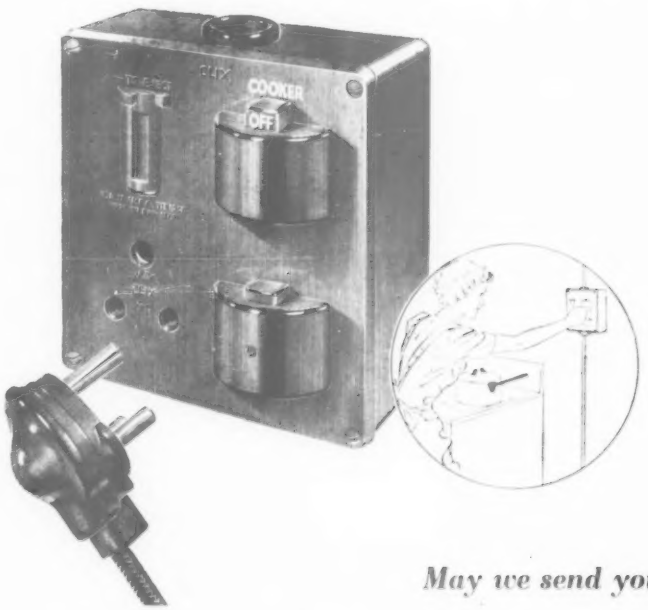
SWITCHING around the house



For every switch position there's a matching Surrey switch. Efficient, distinctive switches with the unique sliding bar action to give that touch of quality to your next electrical installation.

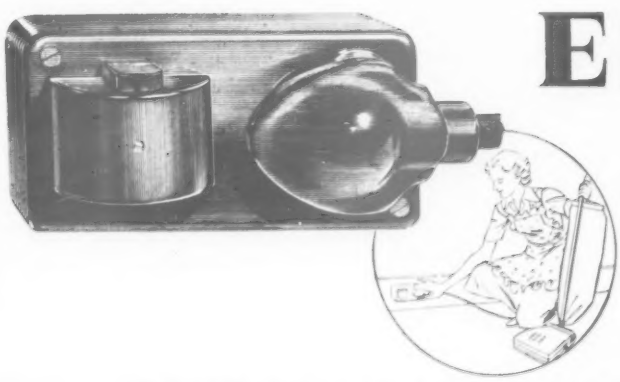
5 amp. and 15 amp. switches with specially designed microbreak action, silver contacts, moulded cover and specially moulded switch-plates and mounting blocks.



Cooker control unit comprising two Surrey type switches, a Clix shuttered socket outlet and a unique fuse unit with a special holder. This unit is also available with a socket to receive a 13 amp. BS 1363 fused plug.

5 amp. and 15 amp. switch socket outlets combining the high quality Surrey switch with a Clix shuttered socket. Can be made right handed or left handed at will and the flexible cord cannot become jammed against the floor even when mounted at floor level.

May we send you a catalogue and a sample switch?



EDISWAN

CLIX

As with all Clix products, Surrey switches are now marketed by Ediswan, thus providing a complete Ediswan electrical service.

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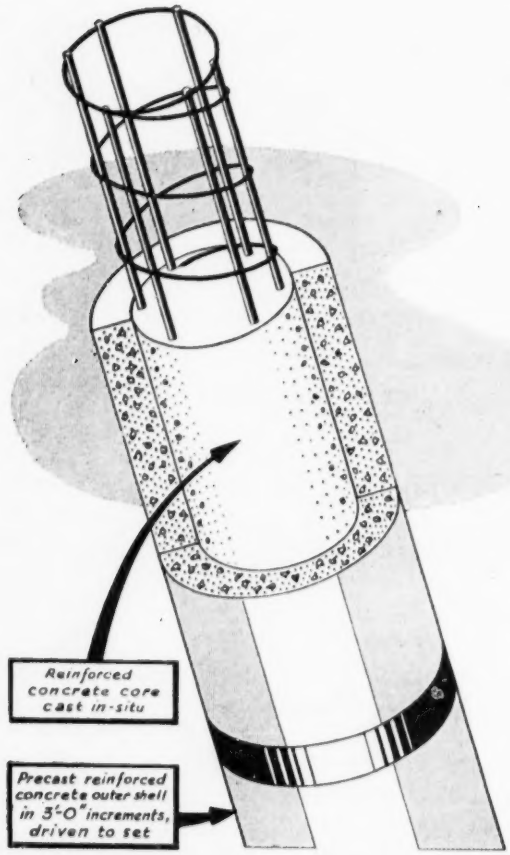

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This question can always be settled by specifying WEST'S SHELL PILES which combine a driven outer shell with an in-situ cast core.

WEST'S SHELL PILES are backed by the experience and research of a quarter of a century and possess an imposing record of achievement, reliability and versatility.

Full technical information is contained in our latest booklet which we shall be pleased to send on request.

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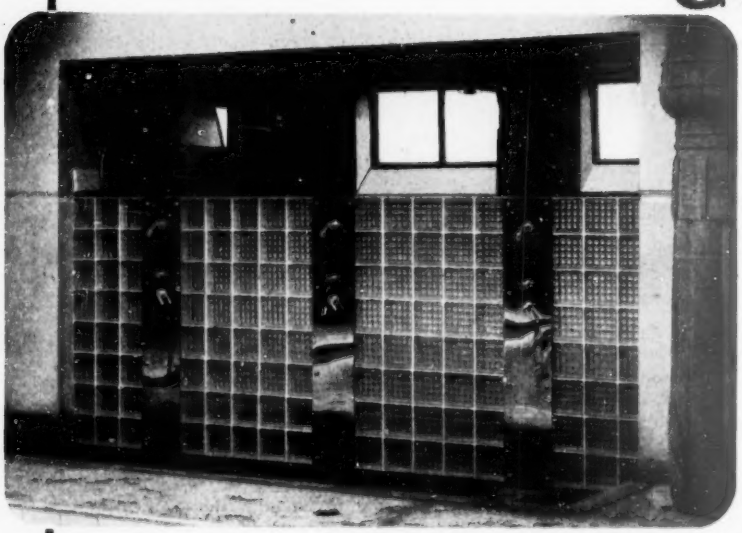
GUMMERS



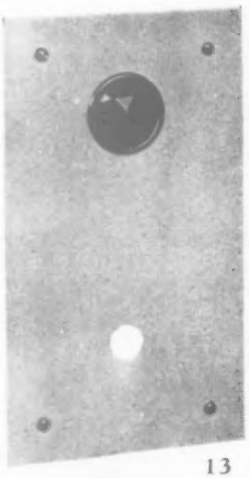
FOR SHOWERS

This range of sprays each controlled by Gummers "Security" thermostatic mixers mounted on stainless steel panels attached to glass block partitions was recently installed at Durham City Baths.

We specialise in the design and supply of modern shower installations for Public Baths, Wash-houses, Schools, Factories, Pithead Baths, etc.

GUMMERS LIMITED ROTHERHAM
TELEPHONES · ROTHERHAM 4865-6-7 TELEGRAMS · GUMMER, ROTHERHAM

The double-pole and intermediate switches can be mounted at 1½in centres thus affording a considerable saving of dimensions where multiple switch fittings are concerned, and the shallow depth, requiring only ⅝in between the plate, provides additional wiring room for the cables. **[6]** D.S. Plugs, Ltd., produce a flush type, unswitched shuttered socket with insulated square plate. In the same series is the 3-pin fused plug to B.S. 1363 with the D.S. patent hinged pin. On pressing the pin the fuse is accessible and can be withdrawn by hand without the aid of tools. **[7]** An economical means of heat or current control by means of the Tucker - Simmonstat. Either surface or flush mounting, costs vary, according to finish, by J. H. Tucker & Co., Ltd. **[8]** The "Minibus" miniature busbar distribution system is a convenient way of providing an electricity supply in such places as machine shops. A section is shown here with one of the plug-in fuse units removed. Made by Electro-Mechanical Supplies, Ltd. **[9]** Features of "Regent" units are the ease of building up compact panels, the generous wiring space, side-opening covers for accessibility, positive interlocking features, and the arrangements for neutral connections. A busbar chamber harmonizing with the switchgear has parallel busbars taking a variety of slidable connections, giving considerable freedom for the making and alteration of internal connections. By Simplex Electric Co., Ltd. **[10]** Special features of the new "TS" fused switch, designed for use on a.c. or d.c. up to 300A, are its silver-faced butt contacts, quick double-break action, shock tested mechanism, easy wiring, removable fuse carriage which takes h.r.c. or rewireable fuses, front operating mechanism and space-saving design. Made by Dorman & Smith, Ltd. **[10]** shows the exterior of the whole assembly and **[11]** the interior of the switch box. **[13-14]** Exterior and interior views of a fused indicator pilot unit with either single- or double-pole switches, made with and without three-pin plug sockets both 5- and 15-amp, by J. H. Tucker & Co., Ltd. **[15]** A neat all-insulated switch fuse control unit, available with various numbers of "ways" and with either rewireable or cartridge fuses. Made by Geo. H. Scholes & Co., Ltd. **[16]** This pull switch for ceiling or wall is made by T.M.C.-Harwell, Sales, Ltd., has a Bakelite cover and a quick make and break on a porcelain base. Complies with B.S.S. 816-1938 and is in brown or white or a combination of the two, either one- or two-way. **[17]** An extremely useful arrangement — ceiling pull switch with indicator pilot light by J. H. Tucker & Co., Ltd. **[18]** Also by Tucker is their cooker control unit with a simmerstat, pilot light and sub-circuit control to a three-pin plug socket. **[19]** A new approach has recently been made to the design of consumers' control units. An all-insulated unit, measuring only 4¼in high by 4in wide by 2½in deep overall and weighing only 1¼lb, incorporates a 60A micro-break switch with mechanical "on" and "off" indicator normally controlling two 5A, two 15A and two 30A s.p. and n. circuits protected by cartridge fuses conforming to B.S. 1361. The arrangement of the circuits can be varied to meet requirements. The plastic moulded case incorporates a metal tray at the bottom carrying a spare set of fuses. Access to the fuses for replacement is secured by sliding the front cover vertically upwards, when the words "Fuses Isolated" appear in the mechanical indicator panel. Should this be done with the switch in the "on" position, the action of sliding the cover will automatically place the switch in the "off" position. For wiring, access is gained by sliding the front cover upwards, removing the two screws then disclosed, and withdrawing. A detachable earthing block is provided for use with cable incorporating an earth wire, by Wm. Sanders & Co. (Wednesbury), Ltd. **[20]** The installation at Union and Armour House, E.C.1, made by General Electric Co., Ltd., consists of a twin rising main of vertical copper bars totally enclosed in a sheet steel duct. The rising mains run up the whole height of the building, compensation for expansion and contraction is made and there are fire barriers of Silumnite within the ducts at every floor level. Fig. 20 shows the termination group and Fig. 21 the beginning of the rising mains. The installation, erected by two men, allows considerable flexibility of power draw-off at each floor. **[22]** A standardized unit construction, isolators, fused-switches and distribution boards in the same panel lends itself particularly well to compact design, while retaining the good features of simple installation and easy access for maintenance, by Varilectric, Ltd. **[23]** Metaclad switchboards and group motor control boards are available in single-, double- and triple-tier formation, and contactors from 30 to 450A rating with a variety of instrumentation and control arrangements, by Belmos Co., Ltd. **[24]** Extreme lightness, without loss of rigidity or toughness, characterizes the new "Sandasteel" range of sheet-steel fuseboards. Despite compactness, the wiring is exceptionally easy with plenty of room to manœuvre the cables. The "Sandaspeed Duplex" fuses are arranged either to take h.r.c. or rewireable carriers, while neutrals, listed separately, can be fitted to suit individual requirements, thus considerably reducing the number of units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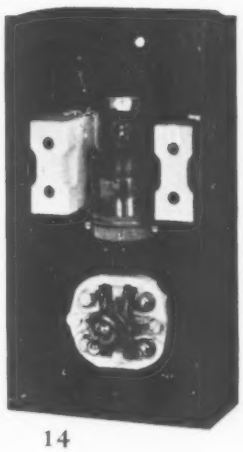
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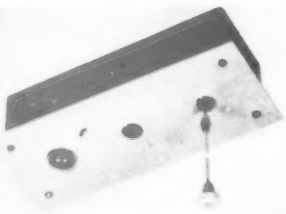
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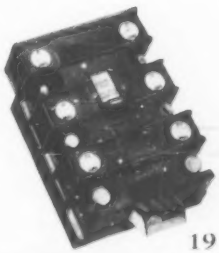
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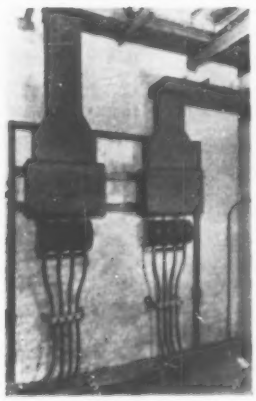
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that have to be stocked. The boards are readily dismantled and packed for export. Hardwood fronts can be supplied for use where the unit is to be recessed in a wall. At present only 30A and 60A models are available, but 15A units will also be on the market shortly. Made by Wm. Sanders & Co. (Wednesbury), Ltd. **[25]** A new composite switchboard arrangement comprises an oil circuit-breaker unit complete with instruments for controlling the incoming supply and directly connected to a busbar chamber on which are mounted fused switches for outgoing circuits. By G. M. Engineering (Ottery St. Mary), Ltd. **[26]** This consumers' supply control unit is of neat and compact design yet has adequate room for making the connections. Called the Zedlock, it is made by Mantel Metalworkers. **[27]** Simplex Electric Co., Ltd. Switch and fuse panel, very compact in its assembly, composed of "Regent" units. **[28]** The 5 and 15A "Slamlock" switch assemblies for schools or temporary lighting installations are fitted on cast iron grids and are completely housed in a sheet-steel case, the case having a hinged cover fitted with the "Slamlock" ensuring access only by authorized persons. Made by Walsall Conduits, Ltd. **[29]** This multi-section Indicator unit provides a valuable check on current consumption, by J. H. Tucker, Ltd. **[30]** Push-button contactor-type starters follow the trend towards smooth, rounded exteriors which do not collect dust. Made by Electric Construction Co., Ltd.

"Sonomatic," an electronic control unit, has recently been developed and put on the market by Edgley Studios, Ltd., of Cheltenham, to control electro-mechanical apparatus and provide a synchronized commentary. The unit was originally designed to provide an automatic commentary for exhibits which the firm supplies to educational and publicity establishments. Its wider applications include its use as an automatic telephone operator, announcer and exhibition "conductor"; while, industrially, it can be used as a multi-point sequence switch with a repeatable and predetermined time-base up to 30 minutes, making it suitable for the control of processes and similar functions. The incorporation of a proximity switch makes the cycle of operations automatic upon the approach of a body within the field. Appropriate channels of magnetic recording tape are impressed with speech and signals, and the latter, when played back, are fed into multi-point uniselectors for distribution to the exhibit. In connection with education and publicity, the apparatus has been found to provide a much improved reception, particularly as most people are disinclined to read lengthy descriptions. The equipment is being introduced into Museums and Galleries to describe and actuate exhibits.

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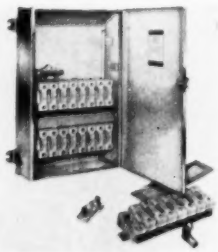

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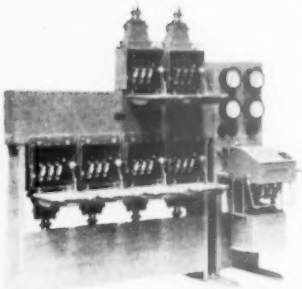

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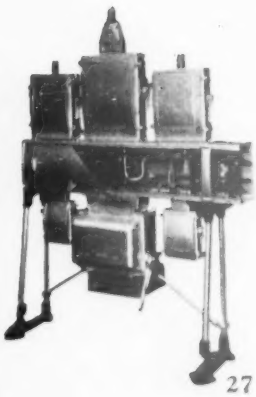

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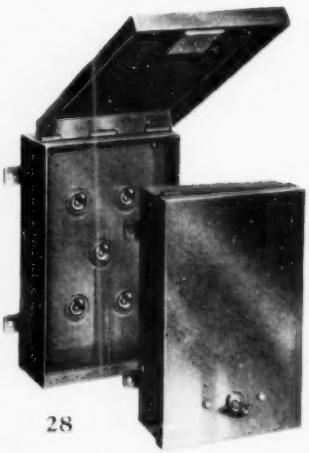

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Enfield Cables, Ltd., are now completing in good time a very large contract for dry-core telephone cables, placed with them by the General Directorate of the Postal Telegraph and Telephone Services of the Turkish Republic, Ankara.

In value the contract has amounted to about £1,000,000 Sterling, involving the supply, c.i.f. Istanbul, of more than 2,500 tons of cable packed on some 1,200 drums. The Turkish P.T.T. Authorities are themselves installing the cables, which will provide extended telephone services in and around Istanbul and Ankara.

The contract was obtained on the promise of prompt delivery, in face of international competition from suppliers on both sides of the Atlantic and at a time when the industry was committed for many months ahead, mainly on the Defence Programme. It is encouraging to report that, by increasing output at Dagenham, delivery dates have been maintained throughout, and will be maintained until the last shipment arrives at Istanbul early in July. Over 600 tons of copper and nearly 1,200 tons of lead have been required for the job; to combat the severe shortage of copper at the time, Enfield had to make special arrangements with the authorities concerned to obtain sufficient supplies of metal. This was successfully achieved.

When the Saudi-Arabian Government decided to modernize the pre-war lighting installation in the Grand Mosque at Mecca, they entrusted the scheme to E. A. Juffali and Brothers, who are carrying out a complete electrification scheme for the Holy City. At the beginning of the year The General Electric Co., Ltd., of England, for which E. A. Juffali and Brothers are agents, sent its Chief Fittings Designer, Mr. L. E. A. Phillips, by air to the Red Sea port of Jedda to undertake the design of suitable fluorescent and tungsten lighting fittings. The task presented obvious difficulties, since for religious reasons he was unable to visit Mecca himself. The birthplace of Mohamed and the cradle of Islam, the Holy City is forbidden to all but those who belong to the Moslem faith. Because there were no detailed plan and elevation drawings of the Mosque available, his ideas of the Mosque were necessarily based on photographs, basic dimensions taken for him by agents, and on a pilgrim's map of the Mosque. The success with which he gauged the "feeling" and atmosphere of the city may be assessed from the fact that the designs which he sketched out while in Jedda proved acceptable on sight to the Director of Mosques in Saudi-Arabia.

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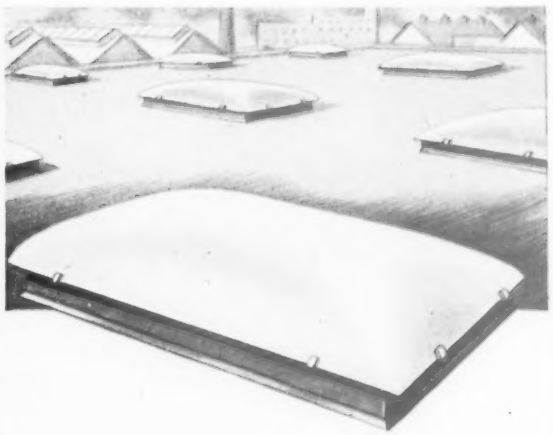

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Services

HEATING SYSTEMS

IN public and private buildings of all types full central heating with radiators, embedded panels, concealed pipes, warmed-air systems, etc., are becoming the general rule. In some modern schools, convective-type heaters, one per classroom served from a central boiler plant, have been installed with satisfactory results.

For heating generally, coke or coal is the cheapest fuel to buy, but the cost of stoking, removal of ash and clinker, etc., must be taken into account. Of the other fuels in general use, oil fuel is outstanding in that the actual cost of fuel is now very little different from coal or coke, and when the saving in labour, etc., is taken into account, it is more economical in many cases.

The cost of gas for heating is now in the region of twice or more the cost of solid fuel, but it has the advantages of cleanliness and simplicity in use. Electricity is still more expensive than gas, and is usually only justified for intermittent heating of a temporary nature, as it eliminates the need for a boiler plant.

* * *

[1] The Radiation system of whole-house warming, by the ducting of heated air has been developed for either a gas-fired installation or for one burning solid fuel. **[2]** For both these installations there has been designed a self-contained heat unit which will heat either air and water, or simply water. The unit is built into an insulated recess and contain a source of heat, a heat exchanger, a fan and motor and a hot-water storage cylinder. The control of the whole house warming unit is completely automatic. Only three manual operations are required, setting the thermostat, refuelling and clearing the fuel bed.

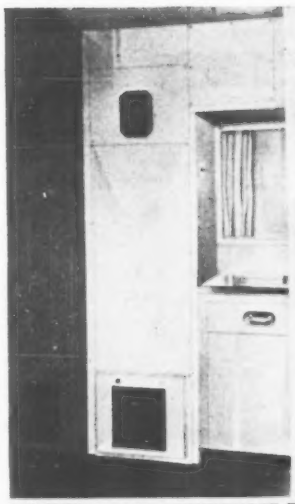
[3] The Agamatic 25/40 by Aga Heat, Ltd., a small domestic boiler, with automatic thermostat control which has just half the heat output of the well-known Agamatic boiler, and is, therefore, unsuitable for central heating. The boiler is surrounded by insulation contained in an enamelled casing and may, therefore, be placed freestanding without the necessity of guarding.

[4] Another recently designed domestic stove, the Nautilus W.F.2 by Radiation, Ltd., is rated at 40,000 B.Th.U./hr and will supply, over and above the usual domestic requirements of hot water, between 70 and 80 sq ft of radiator surface. The whole stove is encased in a steel body, porcelain enamelled black and white. A special tool is used to rotate the three rocker bars that form the grate whereby any clinker is crushed and falls into the large ashpan below.

[5] The "Ideal Autocrat" domestic boiler, by Ideal Boilers and Radiators, Ltd., is another thermostatically controlled domestic boiler with a patent rocking grate for convenient dirt-free servicing. The boiler is rated at 40,000 B.Th.U./hr and will supply 40-50 gallons of hot water an hour at 120°-140°C.

[6] Shows the Main Back Boiler Conversion Unit by Main Water Heaters, Ltd. **[8]** Shows the unit in position in an ordinary grate. The B.B.U. is a portable unit designed to be placed in the grate against a back boiler to provide hot water in bulk at times when the grate is not in normal use, e.g., in summer. It is not intended to provide a continuous supply of hot water and should only be used periodically when occasional bulk supplies of hot water are required for baths, laundering, etc. Depending on the size and position of the storage tank, the time taken to heat all the water will vary, but it is usually possible to obtain one bath in 1½-2 hours with a consumption of 60-80 cu ft of gas (30,000-40,000 B.Th.U./hr) or two baths in 2½-3 hours with a consumption of 100-120 cu ft of gas (50,000-60,000 B.Th.U./hr). Size 10¼in × 9⅝in × 6½in including handle.

[7] The new "Kayenco Superb" gas-fired central-heating and domestic hot-water boiler by Frederick Kay (Engineering), Ltd. There are seven models available ranging from 30,000 B.Th.U./hr to 300,000. Particular attention has been paid in the design to make all controls and waterways accessible for maintenance and although the standard finish is in cream vitreous enamel any other colour will be supplied at no extra charge.



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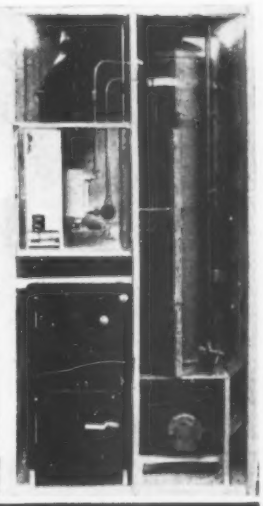

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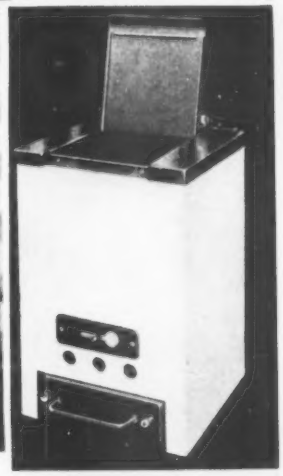

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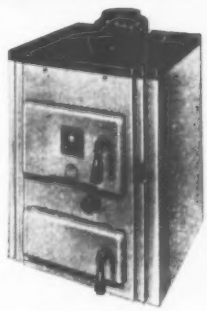

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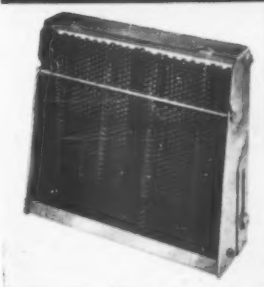

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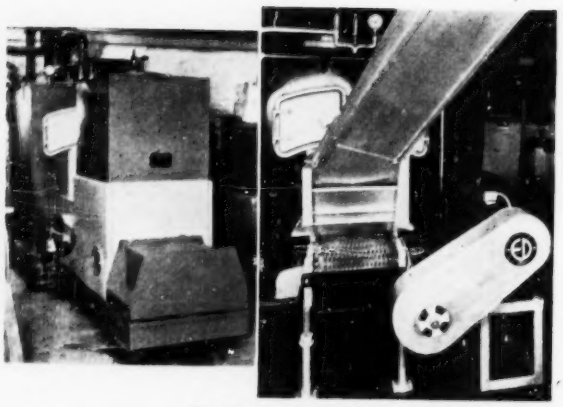

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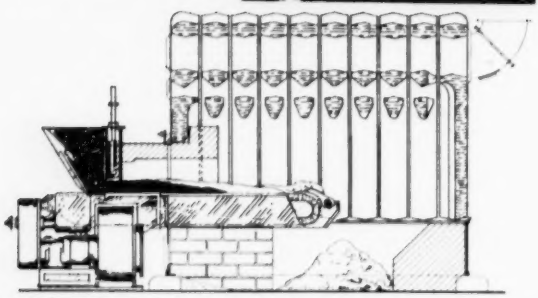

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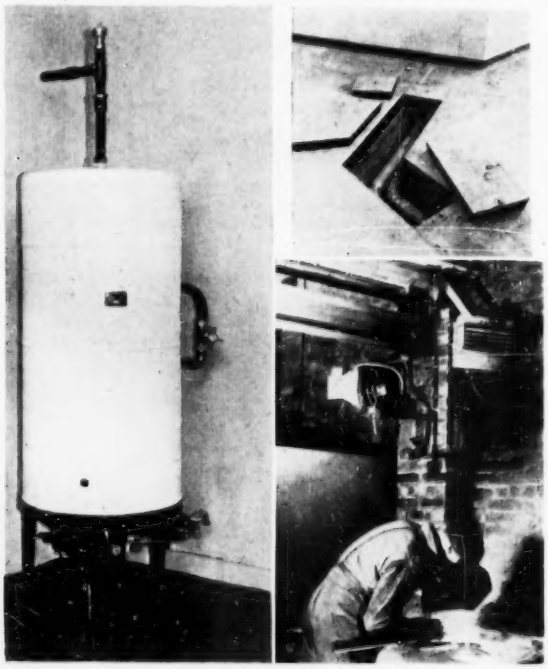

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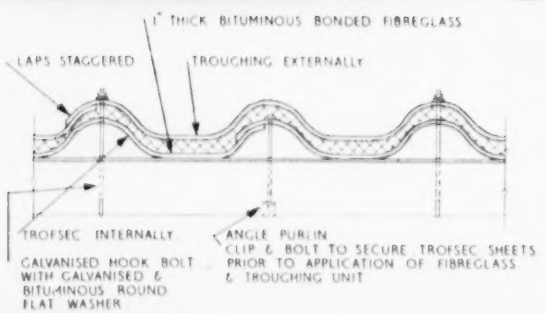
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15

[9] The Bigwood Magnacalor down-jet coke burner is a new combustion appliance suitable for central heating and domestic hot-water boilers and low-pressure steam boilers. All parts are interchangeable and it is claimed to have a high thermal efficiency 75/78% boiler efficiency; 15/18% CO_2.

Down-jet combustion has been the subject of extensive investigation in the Furnace Department of the British Coal Utilisation Research Association.

[10] All concerned with the heating of buildings will be interested in a new chain grate stoker, the "Oldbury Minor," recently developed by Edwin Danks & Co. (Oldbury), Ltd., who, some eight years ago pioneered the first successful chain grate stoker small enough for Lancashire and Economic boiler flues.

The "Minor" has been specifically designed for sectional heating boilers of either steel or cast-iron construction, in a range of from ¼ million to 2 million B.Th.U./hr. The following claims are made for the appliance: (1) Ability to give full boiler output and smokeless combustion on even the poorest quality rough slacks. (2) Ease of installation in existing boilers (only 16in wide). (3) Low maintenance, owing to the rugged design of the entire mechanism, and the use of a special grade cast iron for the links. (4) Easy ash removal without disturbing the fire bed in any way. (5) Single motor drive for both fan and grate, thus lending itself to simple automatic control and enabling it to operate without attention, except for hopper filling and an occasional check on operation if fuel supplies vary in quality. (6) Uniform distribution of radiant heat thus eliminating local hot spots in the centre sections, which might cause local scaling or bonded deposits. The construction and general appearance of the stoker will be seen in fig. **[11]**. In operation, it has proved particularly economical, an installation in a block of offices in Portsmouth having maintained a higher average temperature for a measured period during which the degree days exceeded the same month in the previous year by some 50%, while the fuel consumption only increased by 13.5%. This installation was operating on household screenings (all through ½in).

[12] Broads "Trucast" duct and access covers are the latest product of their long experience in design and construction. Careful consideration is given to afford simplicity of assembly on the site and at the same time to provide a high-class product, embodying air-tight machine seating and perfectly flush surfaces in the floor. The section of the metal has been reduced to a minimum, compatible with strength, so that the cover is unobtrusive when filled with suitable flooring to match the surrounding area. The Broads "Trucast" duct cover is available in a range of sizes and loadings to meet standard requirements in the Building Industry. The illustration shows a typical heating duct with the purpose-made covers removed to show the depth of the section, which is 5in. This will withstand a slow-moving load of 4 tons with a normal safety factor of 2. With a system of R.S.S.s the duct covers can be made to cover large areas, 10ft × 8ft being by no means a maximum. The covers are made in four sections to withstand different loads. **[13]** The New World Equator Storage Water Heater combines in one appliance both storage cylinder and heating unit, and supplies hot water to baths, basins and sinks. It is entirely automatic in action; when the gas is full on, water is heated and gradually stored until the whole of the water in the cylinder is hot, when the gas is automatically lowered to the very small flame required to keep the stored water hot. This water heater is made in three sizes, 12, 18 and 25 gallons, from which the output of hot water, raised 80°F, is 25, 25 and 40 gallons per hour respectively, from the North Thames Gas Board.

[14] A heating installation, planned by The General Electric Company, Ltd., has recently been completed at the Works of Always Welding Construction, Ltd., Aldershot, makers of commercial steel bodies for various vehicle manufacturers catering for the export market. The system comprises eighteen 5kW Unit Heaters and provides for a temperature rise of 25°F with two natural air changes per hour. These heaters consist of a heating unit and a fan mounted in a sheet-steel casing fitted with curved adjustable louvres. They have a number of advantages over other forms of heater in that the convectional stream of heated air can be directed where required; they can be easily mounted and their installation involves no major structural alterations. Once they are installed maintenance is merely a matter of periodical inspection. Isolator switches are employed so that in Summer months the fans can be used by themselves to provide fresher air. Others have been spaced approximately 8ft from the ground at intervals along each of the main walls of the Works and on the main piers which form a boundary between the two larger shops.

[15] The Universal Asbestos Manufacturing Co., Ltd., designed this interesting method of roof construction which is light in weight, has a high chemical insulation value ($U = 0.19$), is of dry construction and the weather-proof outer skin needs no subsequent bitumen treatment. Maintenance is practically non-existent. The illustration shows the construction.

CONTRACT • NEWS •

Notes below give basic data of contracts open under locality and authority which are in bold type. References indicate: (a) type of work, (b) address for application. Where no town is stated in the address it is the same as the locality given in the heading, (c) deposit, (d) last date for application, (e) last date and time for submission of tenders. Full details of contracts marked ★ are given in the advertisement section.

OPEN

BUILDING

ABERDARE U.C. (a) 52 flats in 13 blocks at Llettyshenkin, Cwmbach, Aberdare (traditional or non-traditional). (b) Engineer and Surveyor, Vestry Hall. (c) 2gns. (e) July 4.

* * *

BENTLEY-WITH-ARKSEY U.C. (a) (Contract No. 50) 50 houses. (b) Council's Engineer, Council Offices, Cooke Street, Bentley, near Doncaster. (c) 2gns. (e) July 13.

* * *

BIRMINGHAM C.C. (a) (Contract 290) 89 dwellings, West Heath Estate; (Contract 298) 43 houses, Scotland Lane, Bartley Green; (Contract 300) 8 flats, Coventry Road, Bordesley; (Contract 302) 30 houses, Kitwell Lane, Bartley Green. (b) City Engineer, Civic Centre, 1. (c) 2gns each contract. (d) June 29.

* * *

BRECONSHIRE C.C. (a) (1) additional classroom and library at Brynmawr Grammar School; (2) cloakroom improvements, etc., at Llanwrthwl Primary School; (3) office improvements and sewage scheme at Trecastle Primary School; (4) sanitation improvements, etc., at Hay Primary School. (b) County Architect, Rhyd Offices, Brecon. (d) June 30.

* * *

BROMSGROVE R.C. (a) 10 old people's bungalows, King's Meadow Estate, Clent. (b) H. T. W. Gough, 45, Newhall Street, Birmingham, 3. (c) 2gns. (e) July 11.

* * *

COVENTRY C.C. (a) Wholesale market with administration and canteen block, roadways, etc. (b) City Architect, Bull Yard, off Warwick Row. (c) 3gns payable to Corporation. (e) July 31.

* * *

CUMBERLAND C.C. (a) Nurse's houses with surgery, waiting space and garage at Parton, near Whitehaven and Bothel, near Cockermouth. (b) County Architect, 15, Portland Square, Carlisle. (e) July 6.

* * *

DISS U.C. (a) 48 houses at Diss. (b) Messrs. A. F. Scott and Sons, 23, Tombland, Norwich. (c) £2. (e) July 7.

* * *

DODWORTH U.C. (a) 72 houses at South Road site No. 2. (b) Messrs. Howard and Benson, 88, Mosley Street, Manchester, 2. (c) 2gns. (e) July 20.

* * *

ECCLES B.C. (a) 84 flats in 4 blocks, Old Mill site, Church Street. (b) Frank Bradley, Penny Bank Chambers, 4, Wood Street, Bolton. (c) 5gns. (e) July 18.

* * *

EXETER C.C. (a) Northern health centre, Whipton. (b) City Architect, Municipal Offices. (c) 2gns. (d) July 4.

* * *

LEEDS C.C. (a) No. 3 Children's Homes, Leeds. (b) City Architect, Priestley House, Quarry Hill, 9. (c) £1. (e) July 3.

* * *

LLANGEFNI U.C. (a) (1) Conversion of Pencraig, Llangefni into 6 flats and 1 clubroom, etc.; (2) 30 houses with 8 garages; (3) roads and sewers to serve flats and houses. (b) Council's Clerk, Council Offices, Church Street, Llangefni, Anglesey; immediately. (c) 2gns each section or 5gns for all three.

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LONDON—CAMBERWELL B.C. (a) 108 flats at Site No. 38 (Croxted Road/ Acacia Grove). (b) Town Clerk, Town Hall, Peckham Road, S.E.5, with statement of recent housing contracts or other work carried out and names of referees. (d) July 1.

* * *

MANCHESTER C.C. (a) 4 brick-constructed buildings over Flow Control Stations along Haweswater Aqueduct Southern Section. (b) City Architect, Town Hall. (c) 1gn. (e) July 4.

* * *

NEWCASTLE-UPON-TYNE C.C. (a) Alterations and adaptations to provide a children's home at "Clifton Mount," Grainger Park Road. (b) City Architect, 18, Cloth Market, 1. (e) July 6.

* * *

NEWCASTLE-UPON-TYNE C.C. (a) (1) 21 flats in 3 storeys at Guildford Place and Cheltenham Terrace, Heaton; (2) 81 houses on Section D of the Kenton North Estate. (b) City Architect, 18, Cloth Market, 1; stating contract or contracts. (e) July 16.

* * *

N. IRELAND — NEWTOWNARDS B.C. (a) 9 houses and services at Balfour Street, Newtownards. (b) Town Clerk, Town Hall. (c) £3. (e) July 4.

* * *

N. IRELAND—NORTHERN IRELAND HOUSING TRUST. (a) 22 houses with ancillary works at Killyleagh, Co. Down. (b) Trust Offices, 12, Hope Street, Belfast. (c) £3. (e) July 8.

* * *

RAYLEIGH U.C. (a) New Council chamber and adaptations to existing building at "Barringtons," Hockley Road, Rayleigh. (b) Council's Clerk, Council Offices, 28, High Street. (c) 3gns. (d) June 29. (e) July 23.

* * *

SCOTLAND—FIFE C.C. (a) Infants' school at Cardenden. (b) Messrs. James Gentles and Son, Central Chambers, High Street, Kirkcaldy. (e) July 3.

* * *

SOUTH SHIELDS B.C. (a) 109 houses, Simonside Estate. (b) Borough Engineer, Town Hall. (c) 2gns. (e) July 7.

* * *

TREGARON R.C. (a) 10 houses at Tregaron, 8 at Llanddewi Brefi and 6 at Llangeitho. (b) Council's Clerk, Council Offices. (d) June 27.

* * *

USK RIVER BOARD. (a) Conversion of Aberbran Mill, near Brecon, for use as bailiff's house. (b) Board's Clerk, Cambria House, Caerleon, Mon. (e) July 6.

PLACED

Notes on contracts placed state locality and authority in bold type with (1) type of work, (2) site, (3) name of contractor and address, (4) amount of tender or estimate. † denotes that work may not start pending final acceptance, or obtaining of licence, or modification of tenders, etc.

HARROGATE. (1) Laboratories and offices, for Imperial Chemical Industries, Ltd. (3) Geo. Wimpey and Co., Ltd., Newcastle-on-Tyne, and London, W.6. (4) £650,000.

* * *

WEST BROMWICH B.C. (1) 210 flats in three and six-storey blocks. (2) Yew Tree Estate. (3) Geo. Wimpey and Co., Ltd., 26, Hammersmith Grove, London, W.6. (4) £433,622.

* * *

DOUGLAS (I.O.M.) B.C. (1) 116 dwellings. (2) Willaston Estate. (3) McCormick and Davies, Ltd., Douglas, I.O.M. (4) £143,000.

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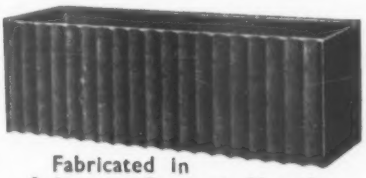

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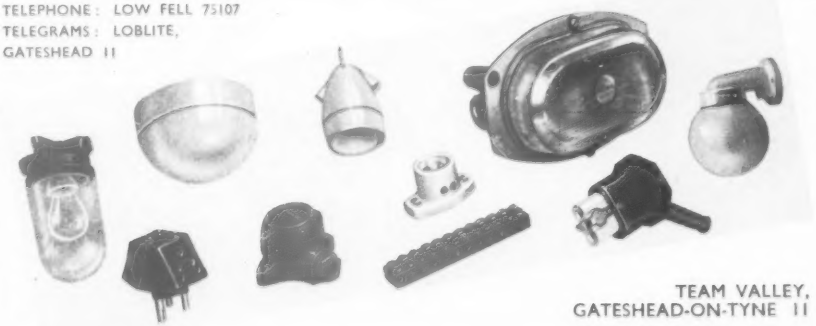

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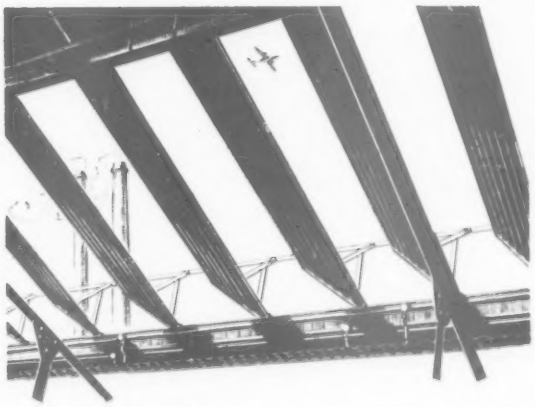

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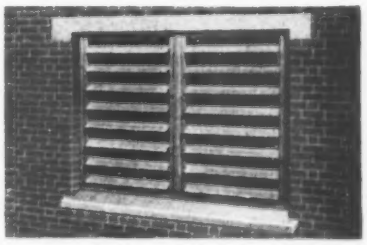

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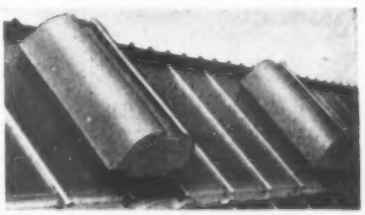

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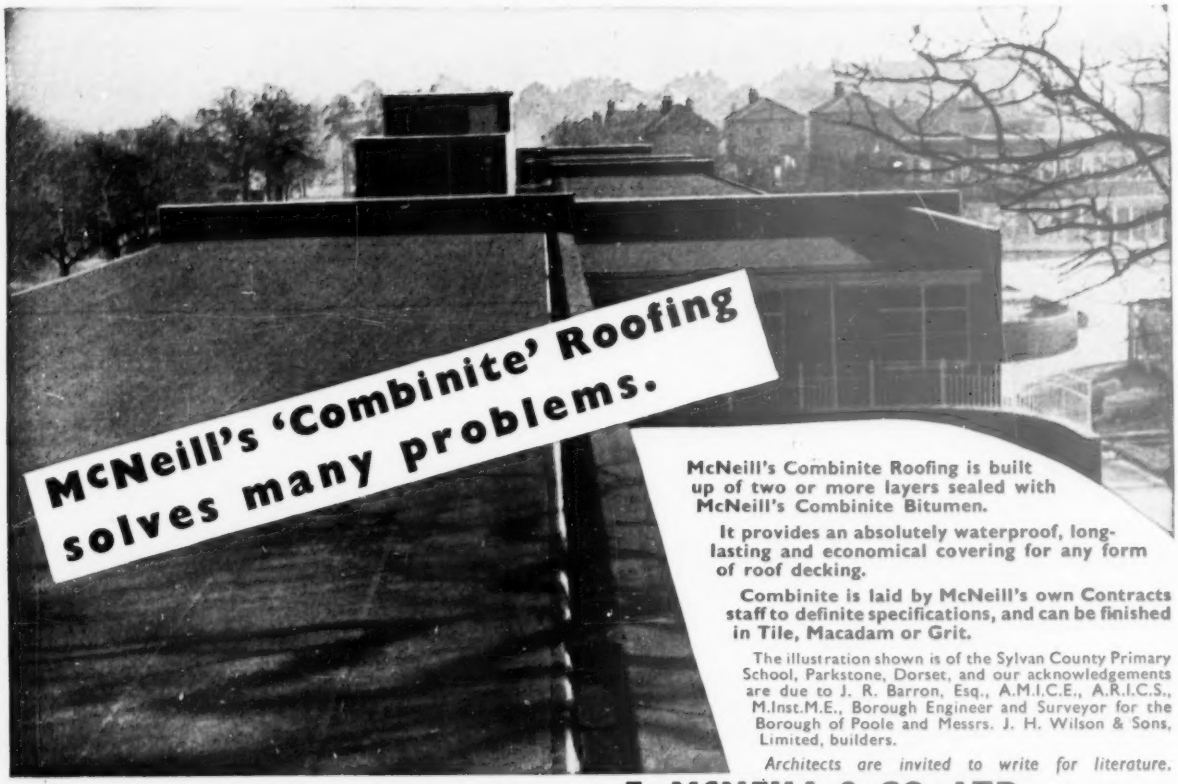

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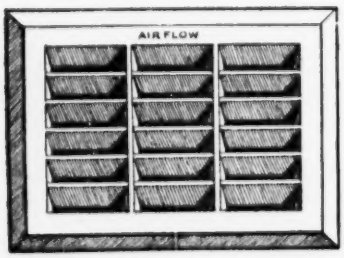

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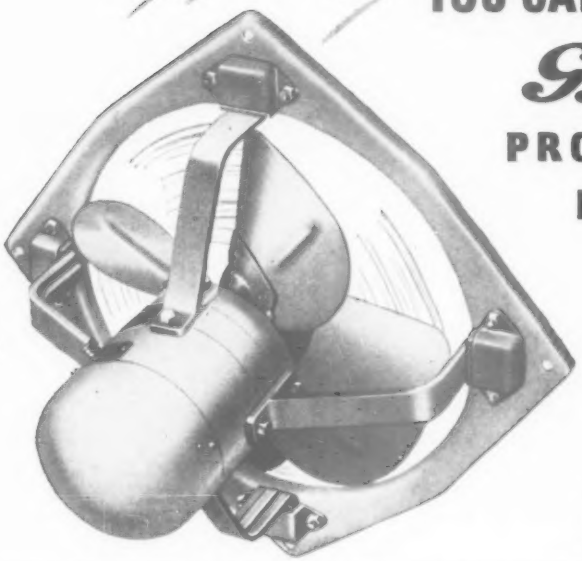

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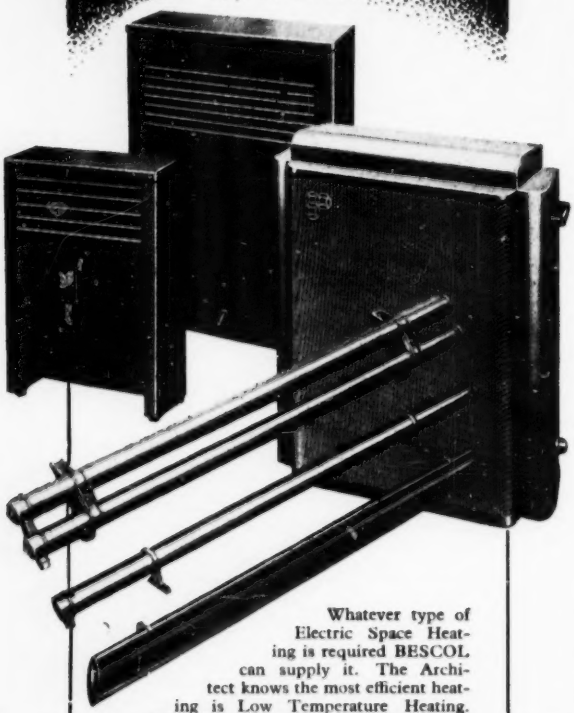

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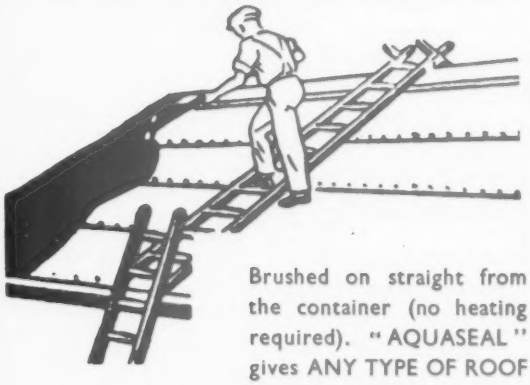

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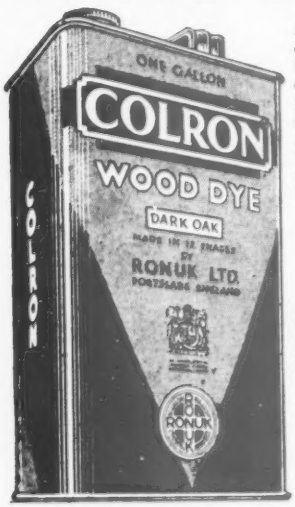

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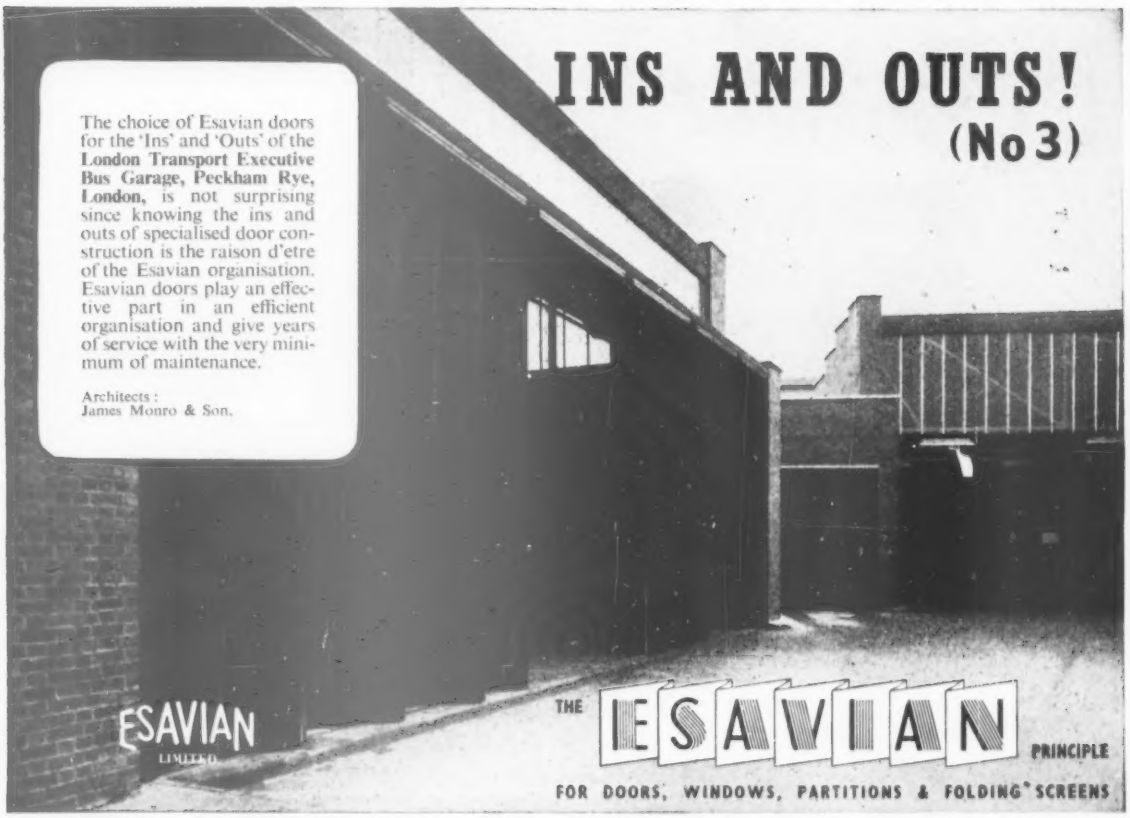
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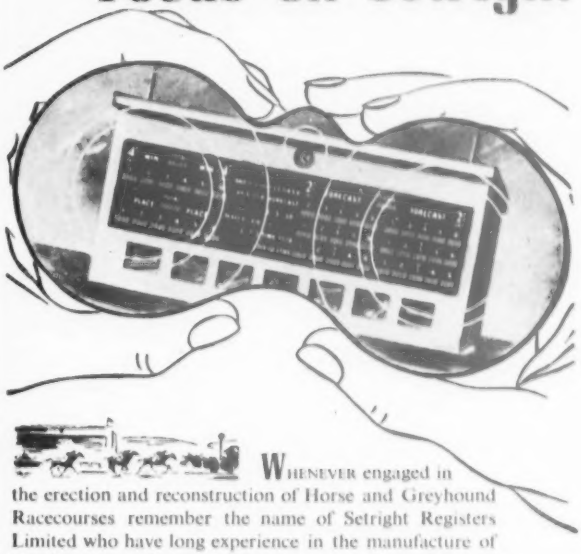

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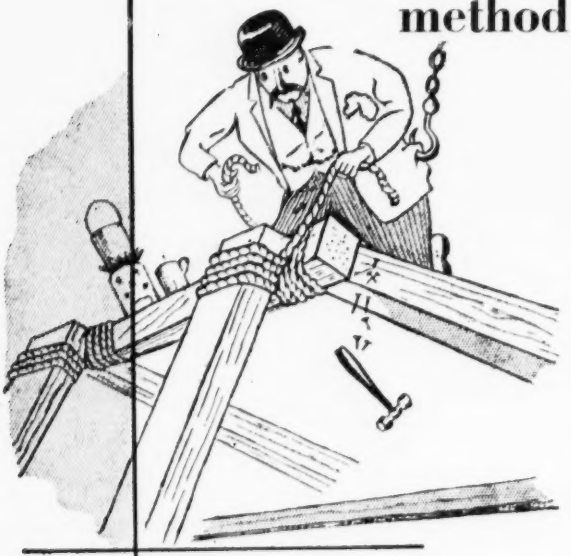

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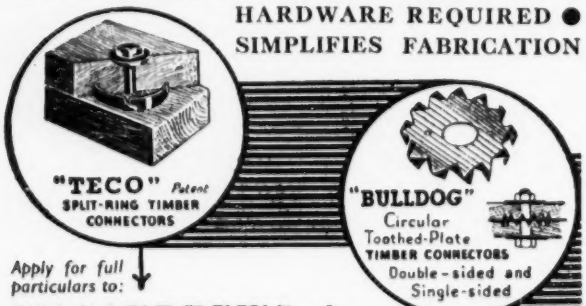

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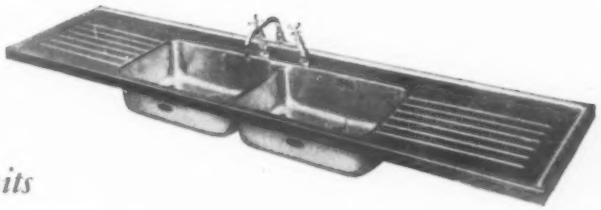

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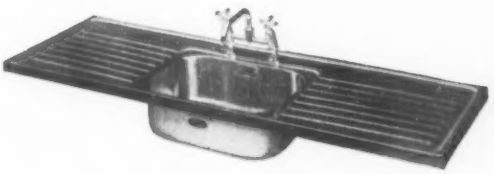

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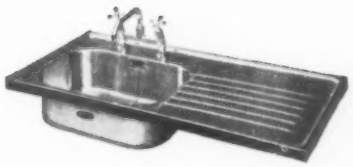

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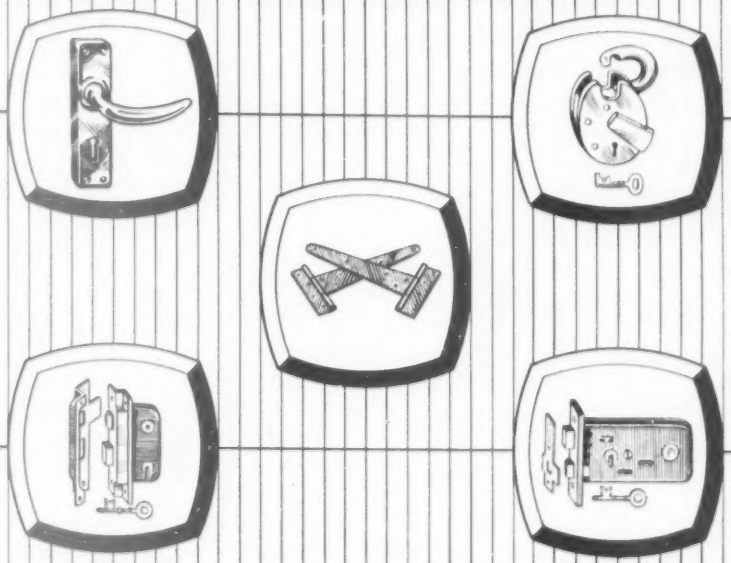

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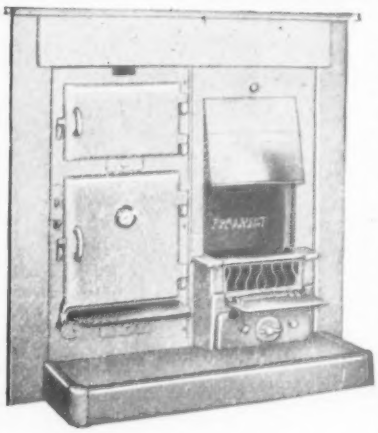

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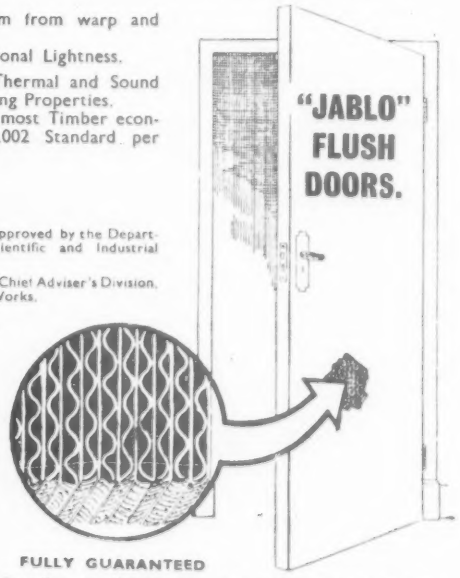

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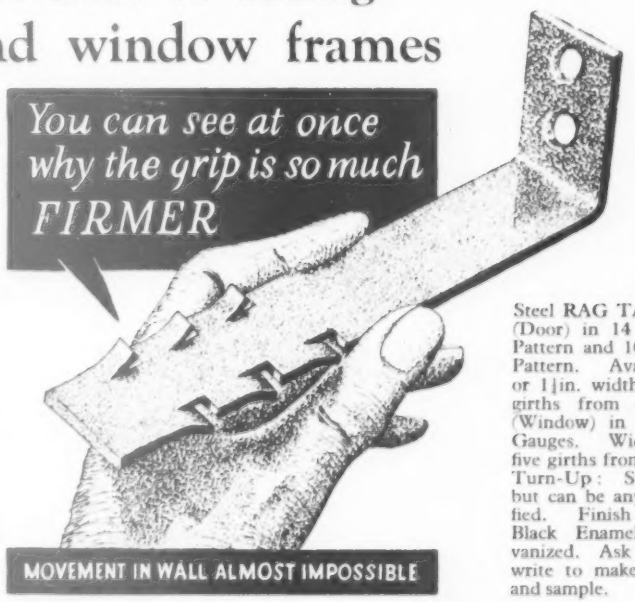

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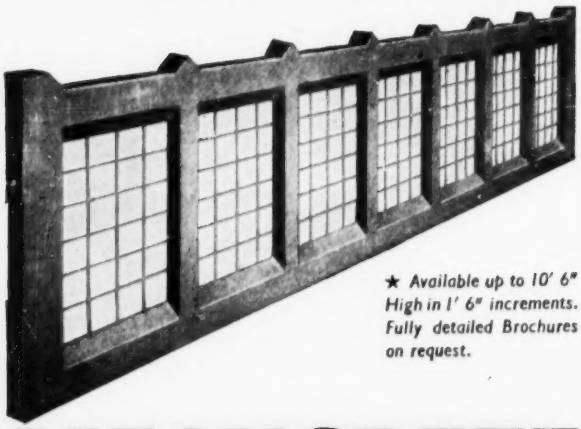

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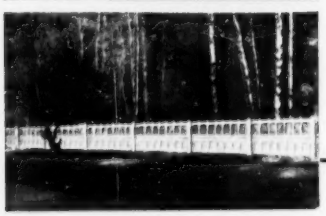

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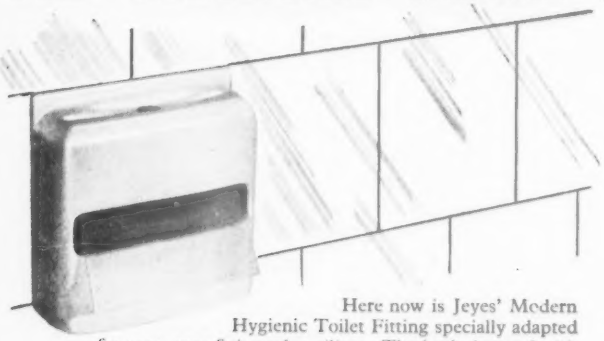

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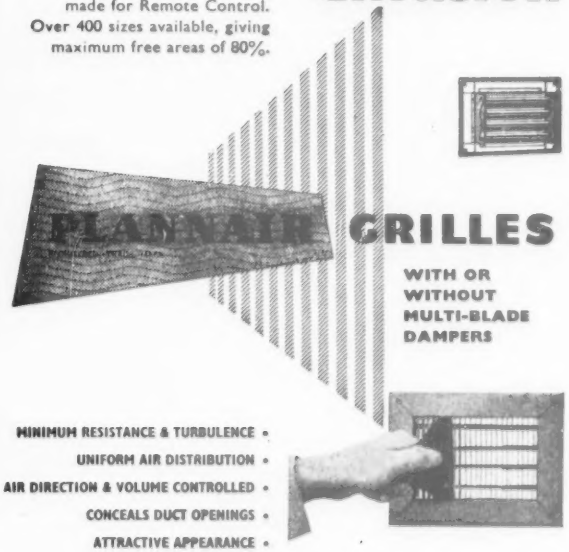

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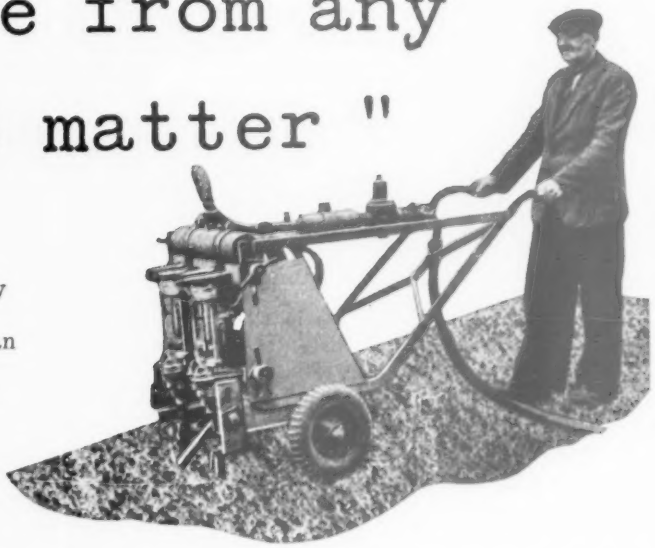

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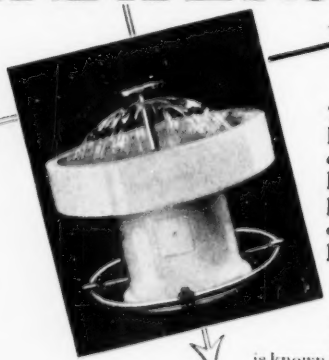

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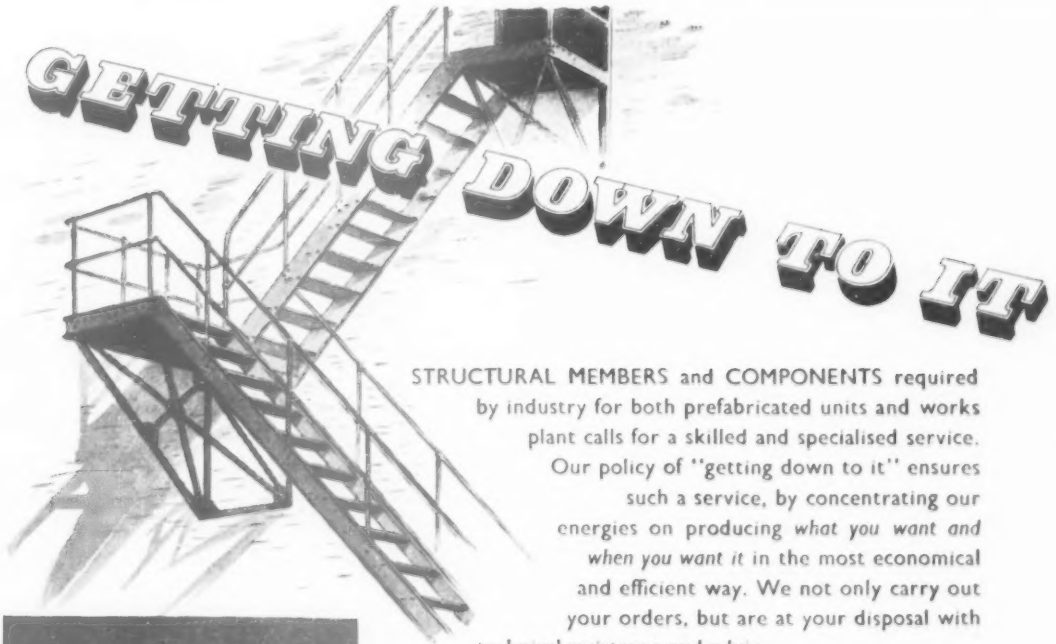

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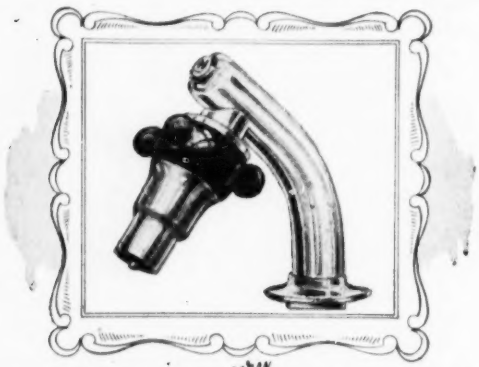

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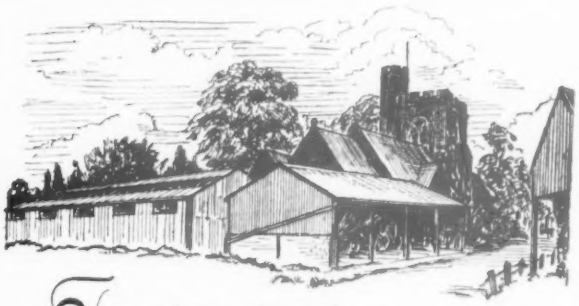

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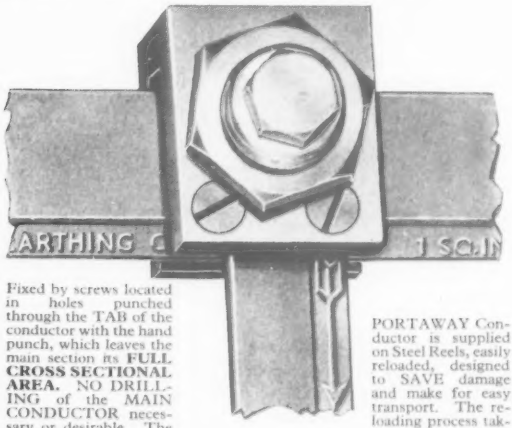

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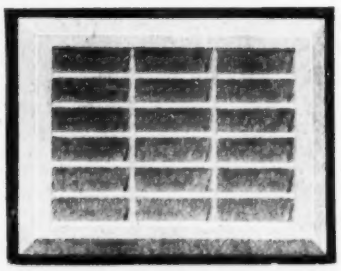

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COUNTY BOROUGH OF ROTHERHAM.

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JOHN S. WALL,
Town Clerk.

Municipal Offices,
Rotherham. [7150

COUNTY BOROUGH OF GRIMSBY.

BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

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The appointment is terminable by one month's notice on either side and is subject to the provisions of the Local Government Superannuation Act, 1937. The successful candidate will be required to pass a medical examination.

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W. H. LEATHEM,
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E. R. DAVIES,
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[7168

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MEIRION O. JONES,
Town Clerk.
[7170

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ERIC R. MORGAN,
Clerk of the Council.

Council Offices,
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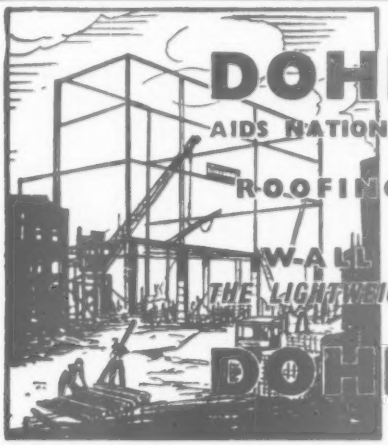

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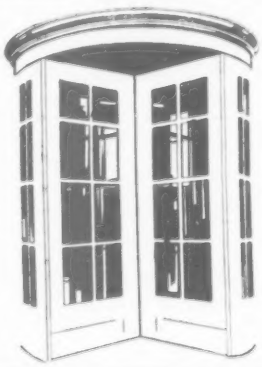

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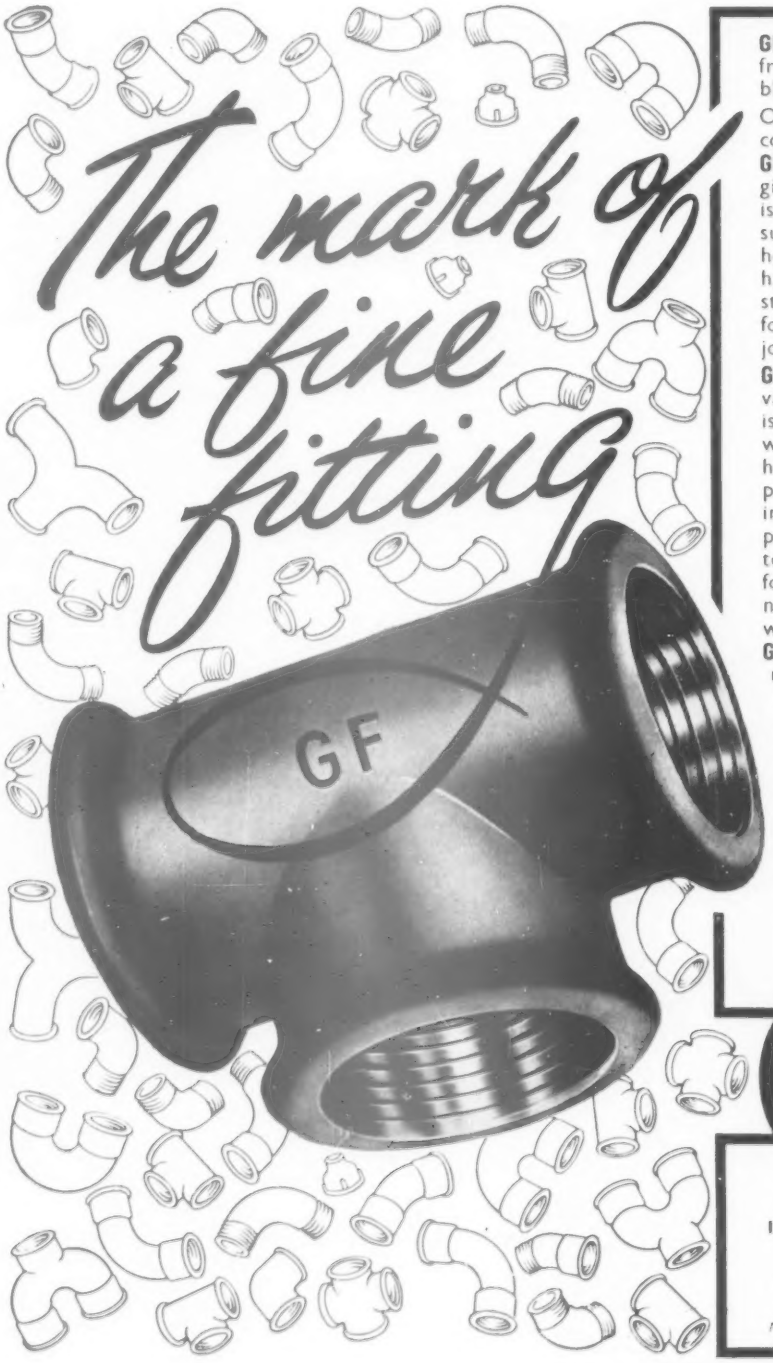

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